IN THE HIGH COURT OF BOMBAY AT GOA
AT PANAJI GOA

PIL WRIT PETITION NO._____ OF 2020

Goa Foundation ….. Petitioner

v/s

Chief Wildlife Warden & Ors ….. Respondents

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Date: 14.07.2020

Advocate for Petitioner

IN THE HIGH COURT OF BOMBAY AT GOA

AT PANAJI GOA

PIL WRIT PETITION NO. ______OF 2020

SYNOPSIS AND CHRONOLOGY OF DATES AND EVENTS

This PIL is filed on behalf of the wildlife of the state of Goa and its habitat, to challenge the approvals granted by the State and National Wildlife Boards for 3 linear infrastructure projects, namely, the expansion of national highway 4-A, the construction of a transmission line and the doubling of the existing railway line, all passing through the Bhagwan Mahavir Wildlife Sanctuary and National Park, at Mollem. These 3 projects collectively require the diversion and destruction of 170 ha. of forest in different areas of this protected wildlife habitat, which will irreparably fragment and destroy the Sanctuary altogether. The approvals are in violation of the mandate given by Article 48A of the Constitution and the provisions of the Wildlife Protection Act, 1972 and are also contrary to public policy and the recommendations of the NBWL itself. The mandatory prior approval of the National Tiger Conservation Authority has not been obtained.

The approvals have been granted without proper consideration and examination of the proposals and studies submitted. The environmental impact assessments of the projects, wherever done, have been shoddily carried out, with little or no proper evaluation on the impact on the wildlife habitat, including its biodiversity. No cumulative impact assessment of the three projects collectively has been carried out.

The impugned approvals are sought to be legitimised under MoEF&CC Guidelines that dilute the strong statutory protections afforded to protected areas. However, those parts of these Guidelines -- which are directly contrary to the Wildlife Protection Act -- are themselves also under challenge in this petition as being *ultra vires* the Act.

Further, the PIL also challenges the jurisdiction/authority of the present NBWL as neither the Board nor the SC-NBWL are constituted or functioning as per law and the continuance of this situation is seriously affecting the implementation of the Wildlife Act. The PIL therefore, besides raising substantial questions of law, also seeks writs of *quo warranto* and other appropriate reliefs.

Hence this PIL.

LIST OF DATES AND EVENTS

Sr. No	**Date**	**Particulars of events or documents if any**	**Annexure and Page**
1.	2003	The National Board for Wildlife is constituted under Wildlife Protection Act, 1972 pursuant to Supreme Court directions	
2.	14.09.2010	The Standing Committee of the National Board for Wildlife is constituted vide Notification by the MoEF&CC	Ann. 41 Pg.355
3.	2010	The Ministry of Railways sanctions the doubling of the railway line between Hospet-Tinaighat-Vasco in 2 phases. Phase 1 comprises the line between Hospet and Tinaighat and Phase 2 comprises the line between Tinaighat and Vasco.	

4.	22.07.2014	The National Board for Wildlife is reconstituted by the MoEF&CC. The SC also reconstituted on the same day by the MoEF&CC.	Ann 42 Pg 359-361
5.	25.08.2014	In Writ Petition (*Chandra Bal Singh Vs UOI &Anr* WP (C) No. 736 of 2014) the Hon'ble SC records that it is tentatively of the view that the NBWL has not been constituted in consonance with Section 5A of the WLPA. The Court accordingly issues notice and directs that while the Standing Committee may continue to function, it shall not give effect to any order passed by it, till the next date of hearing.	Ann 43 Pg. 362
6.	11.09.2014	Subsequent to the legal challenge, the NBWL is reconstituted once again by the MoEF&CC	Ann 44 Pg. 364
7.	13.03.2015	The Ministry of Road Transport and Highways grants approval to the PWD for the 4-laning of the NH 4A from Panaji to Goa/Karnataka border in the State of Goa	Ann 12 Pg.145
8.	15.06.2016	PWD seeks forest and wildlife approval from the Goa State Wildlife Board for the 4-laning of a 13 km stretch of the NH-4 A within the BMWLS & NP. The application states that the proposal involves the cutting of 12,097 trees and the diversion of about 31.015 ha. of protected forest area (24.265 ha in the NP and 6.75 ha in the WLS). The estimated cost of the project is Rs. 59,400 lakhs. The objectives of the proposal, are to "meet the increased demands of traffic in the area and to reduce travel time, fuel requirements and pollution." The DCF's impact report in terms of Section 29 and 35(6) of the WLPA, enclosed in Part III of the application, unequivocally concludes that the project will negatively impact the wildlife habitat.	Ann 16 Pg. 152 Ann 18 Pg. 206

9.	12.10.2016	The railway and highway projects are discussed by the GSWB at its meeting. The GSWB seeks an EIA report for both projects.	Ann 9(i) Pg. 126
10.	15.06.2017	Prior approval is granted by the Government of India in terms of Section 68 of the Electricity (Supply) Act, 2003, to M/s Goa-Tamnar Transmission Project Ltd, an SPV for the transmission scheme.	Ann 27 Pg. 236
11.	16.12.2017	The railway and highway projects are discussed by the GSWB at its meeting. The GSWB approves the railway project and recommends that it be placed before the NBWL for consideration. With regard to the highway, concerns are again expressed by members about losing such a large area of pristine forest and it is suggested that alternatives be found instead.The GSWB decides that an EIA report of the diversion proposal is necessary and must be considered and examined at the next meeting.	Ann 9(ii) Pg. 128
12.	2018	GTTP submits its application for wildlife clearance. The application discloses that the 3.414 kms stretch required for construction / erection of the line will require a width of 46 mtr width. Hence diversion of 11.54 ha of forest area and felling of 4146 trees is required. The estimated cost of the project is Rs.58.2 lakhs The DCF's impact report in terms of Section 29 and 35(6) of the WLPA, enclosed in Part III of the application, concludes that the project will negatively impact the wildlife habitat.	Ann 28 Pg. 239 Ann 29 Pg. 269

13.	21.11.2019	The GSWB is reconstituted	Ann 19 Pg. 209
14.	02.12.2019	According to the minutes, the GSWB approves the Highway and Transmission line projects, recommends both for consideration to the National Board for Wildlife	Ann 9(iii) Pg. 131
15.	02.12.2019	As per the press release issued by the MoEF&CC 8 important tiger corridors have been identified by the NTCA in the Western Ghats landscape, Goa being named in the Sahyadri-Ratnagiri-Goa corridor of Maharashtra and Goa, which is adjacent to the Dandeli-Anshi-Shravathi Valley corridor of Karnataka. The management interventions for these corridors are operationalized through a Tiger Conservation Plan, mandated under Section 38 V of the Wildlife Protection Act, 1972	Ann 6 Pg 107
16.	16.12.2019	6 members of the GSWB write to the Member Secretary of the Board (CWW) expressing concerns about the lack of preparatory notes for the agenda items and the hasty manner in which the agenda was sought to be completed. Specific reference is made to the approval granted to the 3 projects in the BMWLS and the Mollem NP, thereby evidencing discord among the members of the Board. The members seek a cumulative impact assessment of the projects	Ann. 20 Pg. 211
17.	17.12.2019	At the 56th meeting of the SC-NBWL, the railway project is listed in two sectors at Agenda Item No 3 (Castlerock to Kulem) and Agenda item No.56.3.2 (Kulem to Vasco/Madgaon). The minutes record that after briefing the Standing Committee with the bare details of diversion of forest land in both the sectors, both the proposals are approved.	Ann 10(i) Pg. 136

18.	March 2020	A national lockdown is imposed by the Central Government in response to COVID-19.	
19.	07.04.2020	At the 57th meeting of the SC-NBWL, in the midst of the pandemic and lockdown, via video conference, the highway and transmission line projects are placed before the SC-NBWL for the first time and approved at first instance.	Ann 10(ii) Pg. 140
20.	04.06.2020	A group of about 150 scientists, academicians, conservationists, allied professionals as well as concerned citizens write to the Minister of Environment highlighting concerns regarding forest land diversion for NH 4A expansion, railway double tracking and laying of LILO transmission line through the BMWLS and Mollem NP.	Ann. 47 colly Pg. 386
21.	29.06.2020	The Travel and Tourism Association of Goa (TTAG) writes to the Minister of Environment highlighting concerns regarding forest land diversion for NH 4A expansion, railway double tracking and laying of LILO transmission line through the BMWLS and Mollem NP.	Ann 47 colly Pg. 399
23.	11.07.2020	Petitioner writes to NTCA highlighting the issues with the impugned approvals granted to the 3 linear projects requesting the NTCA to ensure that, under no condition, any further work is done on these projects till they are properly assessed for their impact on the proposed tiger reserve by the NTCA.	Ann 40 Pg. 352
24.	July, 2020	PILWP is filed	

POINTS TO BE HEARD

1. Whether any linear infrastructure projects can be approved in an area notified as a wildlife sanctuary and national park which are not necessary for the improvement and better management of wild life therein, as mandated under Sections 29 and 35 (6) of the Wildlife Protection Act, 1972?

2. Whether the impugned approvals granted by the NBWL based on the recommendation of the GSWB are in violation of the provisions of the Wildlife Protection Act, 1972?

3. Whether the Guidelines issued by the MoEF&CC permitting anthropocentric development within protected areas, in the most exceptional circumstances, are in violation of the Wildlife Protection Act, 1972 in so far as they permit activities within notified protected areas that are not necessary for, and will not result in, the improvement and better management of wild life therein?

4. Whether the decisions taken by the SC-NBWL which has not been duly constituted as per the provisions of the WLPA and which currently comprises of several members whose term has ended can be held to be valid?

ACTS/RULES TO BE REFERRED

The Constitution of India, 1950

The Wildlife Protection Act, 1972

The National Board for Wildlife Rules, 2003

AUTHORITIES TO BE CITED

Judgment of the Hon'ble Supreme Court in *Alembic Pharmaceuticals Ltd Vs Rohit Prajapati* [2020 SCC OnLine SC 347]

Panaji, Goa

14.07.2020 Advocate for Petitioner

IN THE HIGH COURT OF BOMBAY AT GOA
AT PANAJI GOA

NOTARY
[illegible] S. Parshekar
[illegible] - Goa
Regd. [illegible] 218/10
Expiry Date
29/0[illegible]/2025
GOVT. OF GOA (INDIA)

PIL WRIT PETITION NO._____ OF 2020

IN THE MATTER OF ARTICLES 21, 48A, 51 A(g), 226 AND 227 OF THE CONSTITUTION OF INDIA AND RULE 4(e) of THE BOMBAY HC PIL RULES;

AND

IN THE MATTER OF THE GUIDELINES ISSUED BY THE MOEF&CC REGARDING PROJECTS PERMITTED WITHIN PROTECTED AREAS;

AND

IN THE MATTER OF THE WILDLIFE PROTECTION ACT, 1972 AND STATUTORY PROVISIONS GOVERNING THE CONSTITUTION AND FUNCTIONING OF THE NATIONAL BOARD OF WILDLIFE;

AND

IN THE MATTER OF THE NATIONAL WILDLIFE ACTION PLAN 2002-2016

AND

IN THE MATTER OF THE APPROVALS GRANTED BY THE GOA STATE WILDLIFE BOARD AND THE NATIONAL BOARD FOR

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WILDLIFE FOR THE 4-LANING OF NATIONAL HIGHWAY 4-A, LAYING A 400 kV TRANSMISSION LINE AND THE DOUBLING OF THE CASTLE ROCK-KULEM AND KULEM-VASCO RAILWAY TRACK WITHIN THE PRECINCTS OF THE BHAGWAN MAHAVEER WILDLIFE SANCTUARY AND NATIONAL PARK, MOLLEM

The Goa Foundation
through its Secretary, Dr. Claude Alvares,
Having Regd. Office at
Room No 7, Above Mapusa Clinic,
Mapusa, Goa 403 507
PAN No. AAAAG0249C
Email id: goafoundation@gmail.com ……Petitioner

V/s

1. Chief Wildlife Warden,
   c/o Forest Department,
   Gomantak Maratha Samaj Building
   Panjim. Goa 403001

2. The Goa State Wildlife Board
   Through its Member Secretary,
   c/o Forest Department,
   Gomantak Maratha Samaj Building,
   Panjim, Goa 403001

3. State of Goa
   Through its Chief Secretary,
   Secretariat, Porvorim, Goa 403501

4. National Board for Wildlife
   Through its Member Secretary,
   Ministry of Environment & Climate Change
   Indira Paryavaran Bhavan, JorBagh Road,
   New Delhi- 110003

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5. Ministry of Environment, Forests& Climate Change (MOEF&CC)
Through its Secretary,
Indira Paryavaran Bhavan, Jor Bagh Road,
New Delhi- 110003

6. National Tiger Conservation Authority
B-1 Wing, 7th Floor,
Pt. Deendayal Antyodaya Bhawan
CGO Complex, New Delhi 110003

7. Ministry of Road Transport and Highways
Through its Secretary
Transport Bhavan, 1 Parliament Street,
New Delhi, 110001

8. Ministry of Power
Through its Secretary
Shram Shakti Bhavan,
Rafi Marg, New Delhi 110001

9. Ministry of Railways
Through its Secretary,
Rail Bhavan, 1,
Raisina Road, New Delhi 110001

10. Public Works Department
Through the Chief Engineer,
Works Division, XV(NH)
Govt. of GoaPonda, Goa 403001

11. M/s Goa Tamnar Project Pvt Ltd
F1 Mira Corporate Suite, Main Mathura Road,
Ishwar Nagar,New Delhi 110065

12. M/s Rail Vikas Nigam Ltd
Opposite Railway High School (EM)
Gadag Road, Hubli, Karnataka

13. The Standing Committee,
National Board of Wildlife,
Ministry of Environment & Climate Change
Indira Paryavaran Bhavan,
JorBagh Road, New Delhi- 110003 ....Respondents

(Above addresses are registered addresses of parties)

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To,
The Hon'ble Chief Justice and Companion Judges,
Bombay High Court at Panaji, Goa

THIS HUMBLE PETITION OF THE PETITIONER
MOST RESPECTFULLY SHOW

PARTICULARS OF THE CAUSE

1. This PIL is filed on behalf of the wildlife of the state of Goa and its habitat, under Articles 48A and 51 A(g) of the Constitution of India, and the provisions of the Wildlife Protection Act, 1972. The PIL challenges the approvals granted for three separate infrastructure projects that are proposed to be constructed and operated through the Bhagwan Mahaveer Wildlife Sanctuary and National Park, Mollem (BMWLS & NP) and which admittedly will be destructive of wildlife and their habitat. Specifically, the PIL challenges the decisions of the Chief Wildlife Warden, Goa, the Goa State Wildlife Board (GSWB) and the National Board for Wildlife (NBWL), approving (1) the proposal of the PWD, Goa, for the 4-laning of National Highway 4A – for the stretch of km 84 to km 96 – that passes through BMWLS & NP (2) the Goa-Tamnar Transmission Project to construct 3.5 kms transmission line through the BMWLS & NP and (3) the South Western Railway's project for doubling of the section of the railway line from Castlerock to Vasco that passes through the BMWLS & NP (Protected Area or PA).

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2. The PIL challenges the decisions of the present NBWL on the grounds that neither the Board nor its Standing Committee are constituted or functioning as per law and the continuance of this situation is seriously affecting the implementation of the Wildlife Act and constitutional directives. The Wildlife Act was in fact amended to create the NBWL, pursuant to a Supreme Court order. In the last six years, however, the Board has been turned into a project-clearance committee, rubber stamping projects on behalf of the central government, and legitimizing serious assaults on wildlife habitats prohibited by law and constitutional requirements. The duty of the Board is to protect wildlife, not promote projects or clear them. It has done nothing for the interests of wildlife for which it was created. The clearing of projects has nothing to do with wildlife. The present Minister for Environment is also the Chairperson of the Standing Committee and also Chairperson of the National Tiger Conservation Authority. The present incumbent is also Minister for Heavy Industries. The conflicts of interests are many. Independent and objective policy decisions to protect the interests of wildlife are impossible in such circumstances. This is a serious violation of Article 48A of the Constitution. The PIL therefore, besides raising substantial questions of law, also seeks writs of *quo warranto* and other appropriate reliefs.

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3. Petitioner submits that the three projects whose approvals are challenged in this PIL are strictly not permitted as per the objects and provisions of the Wildlife Protection Act, 1972 and are also contrary to public policy and the recommendations of the NBWL itself. It appears

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that decisions in favour of such projects are being legitimized under certain Guidelines issued by the Ministry of Environment & Forests& Climate Change (MoEF&CC) for projects within Protected Areas (PAs). However, those parts of these Guidelines --which are directly contrary to the Wildlife Act --are themselves also under challenge in this petition as being *ultra vires* the Act.

4. Petitioner further submits that wildlife approvals have been granted to these projects without proper consideration and examination of the proposals and studies submitted. The environmental impact assessments of the projects, wherever done, have been shoddily carried out, with little or no proper evaluation on the impact on the wildlife habitat, including its biodiversity. The mandatory approval of the National Tiger Conservation Authority has not been obtained. More importantly, there is no cumulative environmental impact assessment for the three projects which would disclose or assess their true impact on the Mollem WLS & NP as a result of significant diversion of forest lands, destruction of biodiversity and water bodies, and increased vehicular movement which will occur once implementation of the projects commences. As of now, no development work has commenced on any of the three projects in the area under challenge. However, some preliminary work has commenced outside the PA area.

5. Collectively, the three projects involve diversion of a substantial area of forest land – approximately about 170 ha – from the Protected Area (PA). Diversion for the highway project is 31.015 ha, electricity project is 11.54 ha and railway project is 128.28 ha. But these are only the

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official figures of forest land needed for the projects. Development works during the construction period will entail far more undisclosed destruction of forest land and wildlife in the PA.

6. The total number of trees within the BMWLS & NP to be slaughtered is almost 37,000. (Highway project is 12,097 trees, electricity project is 4146 trees and railway project – in 2 segments – is 20,758 trees). Number of trees to be felled is much higher. Large numbers of trees have been intentionally excluded from the enumeration (as can be seen on the ground) in order to simply minimize perception of environmental damage and gain necessary approvals. Such large scale felling of forest trees in a single sanctuary is completely unacceptable and truly unprecedented. The three projects will destroy forever the integrity of the PA and NP. Hence this PIL, which challenges each project individually in its approvals, and also on grounds of unassessed collective and cumulative environmental damage to the wildlife environment.

Particulars of the Petitioner

7. The Petitioner is an environment NGO based in Goa who has approached both, this Hon'ble Court and the Hon'ble Supreme Court, time and again over the past three decades, in public interest, for enforcement of the provisions of environment, wildlife, forest, coastal regulation, land use, pollution and mining laws. All its members are citizens of India. The average annual income of the Petitioner organization is around Rs.9 lakhs. The Petitioner states that there is no

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civil, criminal or revenue litigation involving the Petitioner organization which has or could have a legal nexus with the issue involved in this PIL. Registration certificates and resolution the petitioner organization is herein marked and annexed to the petition as **Annexure 1 colly.** Undertaking that the petitioner will disclose the source of information leading to the filing of the PIL is herein marked and annexed at **Annexure 2**.

8. The Petitioners state that this petition is filed by way of public interest. The petitioners do not have any personal interest in the matter. Reliefs claimed are in public interest.

9. The Petitioners state that the entire litigation costs and other charges are being borne by the petitioners.

10. Petitioners state that adequate research has been conducted in the matter raised through the petition and all relevant material has been annexed to the petition. More may be added, if necessary, at a later stage.

11. The Petitioner states that to the best of their knowledge and research the issues raised in the petition was not dealt with or decided and that a similar or identical petition was not filed earlier by the petitioner on the same matter either in this Hon'ble Court or in the Supreme Court of India. Petitioners state that this Hon'ble Court has jurisdiction to hear and decide this matter.

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12. The Petitioners have understood that in the course of hearing of this petition, the Court may require any security to be furnished towards costs or any other charges and the petitioners shall comply with such charges.

FACTS CONSTITUTING THE CAUSE

13. The BMWLS & NP cover an area of 240 sq km within Dharbandora and Sanguemtalukas in Goa, and are a part of the contiguous PA network in Goa. The BMWLS is one of Goa's oldest wildlife sanctuaries, notified in 1967. Subsequently, in 1978, a part of the sanctuary admeasuring around 107 sq km was notified as the Mollem National Park. This PA is a vital wildlife habitat of Goa, being home to a number of endangered species, including tigers. A map of the contiguous wildlife habitat and a map showing the alignment of the three impugned projects is enclosed as **Annexure 3.**

14. Further information on the BMWLS & NP is contained in the three conservation reports of the Dy. Conservator of Forest (Wildlife & Eco Tourism) prepared under Section 29 and 35(6) of the Wildlife Protection Act, 1972 for each of the three projects and enclosed with this petition at **Annexure 4 colly**. The conservation value reports show the rich and diverse flora, fauna and the ecological importance of the PA. Excerpts taken from the three reports are quoted below:

    - The BMWLS and NP are home to numerous endemic species associated with the Western Ghats, but also those that are not typically associated with the area such as the Vigor's Sunbird. 16

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out of 28 birds endemic or near endemic to the Western Ghats occur here namely, Nilgiri Wood pigeon, Pompodour green pigeon, Malabar parakeet, Malabar grey hornbill, White cheeked barbet, crimson fronted barbet, Malabar Woorshirke, Malabar Lark, Flame throated bulbul White-bellied Blue Flycatcher, Malabar Whistling Thrush, Malabar Startling, NilgiriFlowerpecker, Crimson-backed Sunbird, and Western Crimson Sunbird.

- Also home to 13 of 14 species that are endemic or near endemic to the Western Ghats and Sri Lanka (14 including the potential endemics or near endemics pending general acceptance of recent taxonomic study), namely Mountain Hawk Eagle (Legge's), Sri Lanka Bay Owl, Ceylon Frogmouth, Indian Switlet, Malabar Trogon, Malabar Pied Hornbill, Scarlet Minivet (Orange), Yellow brown Bulbul, and Black Bulbul (Square-tailed).

- Besides serving as a host for endemic species, the Goa forests provide refuge to several migratory species, including peninsular rarities on passage. 260 species of birds have been recorded in BhagwanMahaveer Wildlife Sanctuary in the vicinity. In addition to this about 145 species of butterfly have been recorded and the mammals includes Slender Loris (Loris tardigrodus) Pangolin (Manicrassicaudata), Gaur (Bosgaurus), Indian Giant Flying Squirrel (Petauristaphilippensis), Malabar Giant Squirrel (Ratutaindica), Dhole (Cuonalpinus) Sambar, Spotted Deer, Sloth Bear, Barking Deer, Leopard (Pantherapardus),Tiger (

S. Parshekar
29/01/2025

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Pantheratigris) etc seen in the BhagwanMahaveer Wildlife Sanctuary .

- This park is famous for its reptiles, in particular the King Cobra, Bronzeback tree snake, Cat snake, Hump-nosed pit viper, Indian Rock python, Malabar pit Viper, rat snake, Russell's viper Common krait, Indian Cobra and Monitor lizard are also seen here.

- The predominant species of trees are Terminalia, Lagerstroemics, Xyila and Balbergia. Large area covered with a thick thorny network of thorny calarnus species that make the forest unpassable while signifying the richness of succession and optimal microclimatic conditions in the National Park.

- This PA is rich with medicinal plants, having semi-evergreen, evergreen and moist deciduous types of forests and its canopy is almost closed and availability of grass is very limited. It has several perennial water sources.

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- The PA helps to reduce forest fragmentation and degradation through stringent protection which helps in biodiversity conservation at the site. The effective protection of this area enhances carbon sequestration and in strengthening the resilience of ecosystems and landscapes to climate change. Also it provides safety through their genetic resources and ecosystem services.

- The Dudhsagar Waterfalls (ocean of milk) is one of the park's key features. It is Goa's tallest waterfall and flows downstream to join the mighty Mandoviriver, Goa's lifeline. The water from

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Dudhsagar waterfalls, over time, has carved crevices downstream over solid rock called the Devil's Canyon and is known for its underwater currents. The Tambdi waterfalls about 4 kms from Tambdi Surla is equally spectacular. There are perennial rivers such as Ragada, Dudhsagar, etc and rivulets originate in this PA and act as a main source of drinking water for the people of Goa.

- This PA provides a place for recreation to the general public and attracts tourists in thousands at various tourist sites. There is a small exquisite 12th century Shiva temple of the Lord Mahadeva located in BMWLS and is an active place of Hindu worship. It is notable as the oldest temple in Goa. It is considered to be the only specimen of Kabamba-Yadava architecture in basalt stone, preserved and available.

15. Pursuant to directions of the Hon'ble Supreme Court of India in its judgement dated 21.4.2014, passed in Writ Petition No.435/2012 (*Goa Foundation vs UOI &Ors*(2014) 6 SCC 590), the MOEF&CC issued notifications declaring a 1 km buffer zone outside the boundaries of the BMWLS and NP. Copy of the notification dated 23.01.2015 is at **Annexure 5**. Activities in this area are regulated by the requirements of the said notification. Further, it is also protected by notification dated 13.11.2013 issued under the EPA, 1986, which protects Western Ghat zones as per the Western Ghats High Level Working Group's report (Kasturirangan Committee). The petitioners crave leave to produce and rely upon the notification dated 13.11.2013.

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16. The Petitioner submits that the Hon'ble Supreme Court has issued notice in a petition filed by certain groups, including the Petitioner herein, for the implementation of the reports of the High Level Working Group (HLWG) and also, the Western Ghats Ecology Expert Panel (WGEEP) headed by Dr Madhav Gadgil. So the entire zone is an ecologically sensitive area.

17. The PAs of Goa are part of the Western Ghats landscape complex which has the unique distinction of having the world's largest tiger population. This landscape has several interconnected tiger reserves and protected areas along with Reserve Forests. The BMWLS is also contiguous with the Kali tiger reserve and the Anshi Dandeli Wildlife Sanctuary in Karnataka, forming part of an important tiger corridor and contiguous wildlife habitat system within the Western Ghats. Studies have shown that when tiger populations are isolated by linear projects, there's the risk of inbreeding, of disease and ultimately of local extinction.

18. According to a press release from the Ministry of Environment, Forests and Climate Change dated 02.12.2019, 8 important tiger corridors have been identified by the NTCA in the Western Ghats landscape, Goa being named in the Sahyadri-Ratnagiri-Goa corridor of Maharashtra and Goa, which is adjacent to the Dandeli-Anshi-Shravathi Valley corridor of Karnataka. The management interventions for these corridors are operationalized through a Tiger Conservation Plan, mandated under Section 38 V of the Wildlife Protection Act, 1972. Copy of the press note titled "Tiger Corridors in India" dated

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02.12.2019 is enclosed as **Annexure 6.** Thus, any projects within the contiguous Wildlife Sanctuaries in Goa would also require the consensus and advice of the NTCA.

19. Due to the presence of tigers in the protected areas of Goa and the importance of this habitat, the National Tiger Conservation Authority (NTCA) has repeatedly made recommendations to the Govt of Goa to declare these areas as tiger reserves. Most recently, the recommendation was made by the 2 member committee of the NTCA constituted to investigate the tragic death of 4 tigers in the Mhadei WLS. A PIL by this petitioner has been filed before this Hon'ble Court seeking the implementation of the NTCA's recommendations as mandated under Section 38(v) of the Wildlife Protection Act. The reduction of vital wildlife habitats will only further contribute to the increasing instances of human-wildlife conflict in these areas.

20. The NTCA Report on the tiger killing in Mhadei, enclosed as **Annexure 7,** made telling comments on the present management status of Goa's wildlife sanctuaries. It observed:

> "5. The unfortunate death of four tigers has also revealed that not all is well with the management of Mhadei Wildlife Sanctuary. According to wildlife activists …….. the Forest Department has not taken any serious and sincere steps for protection and conservation of tigers.

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6. There exists no proper protection mechanism inside the sanctuary, like network of well connected Anti-Poaching Camps (APC) at strategic locations manned by Forest Guard / Watchers round the clock and year which is a very common feature of well managed PA / Tiger Reserve…… There are only four camps at Codal, Nagargoa, Valpoi and Caranzol for a sanctuary spread over an area of more than 200 sq km!

7. In absence of any organized APC network and regular patrolling, it is very difficult to know what exactly is happening to the flora and fauna of this otherwise biodiversity rich sanctuary of the Western Ghats. It is highly possible that tigers, their prey base and other flora, fauna might be subjected to varying degrees of poaching pressure but there is no way to know unless a good protection and information network is put in place."

"10. Unfortunately even after more than two decades of declaring Mhadei as Wildlife Sanctuary, it is managed on completely ad-hoc basis as there exists no management plan for such an important sanctuary of Western Ghats. It gives an impression that wildlife management appears to be a subject which is of least priority for the Goa Forest Department. [...] though Working Plan division has prepared the GIS shape file of the sanctuary but it appears that no systematic and sincere efforts have been made on the ground for delineating the boundary of the sanctuary."

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> "21. The issue of declaring Mhadei Wildlife Sanctuary as a "Tiger Reserve" is a long pending one, with the central government initiating steps way back in the year 2012 by requesting the Goa state for submission of a proposal."

> "23. In view of the significant gains contributed by tiger reserves, it is probably right time for the State of Goa to take forward the State Board for Wildlife decision and submit proposals for declaration of not just for Mhadei Wildlife Sanctuary but also Bhagwan Mahavir National Park, Bhagwan Mahavir Wildlife Sanctuary, Cotigao Wildlife Sanctuary and Netravali Wildlife Sanctuary as Tiger Reserves. This move will not only secure the habitat for mega carnivores and the associated floral & faunal diversity at the state level but also contribute towards conservation of Western Ghats, a biodiversity hot-spot and a 'World Heritage Site'."

If this assessment is correct, coming from an expert connected with the NTCA, the situation ought to be remedied before the state government and its forest department venture to damage these sanctuaries further with such major projects. The remarks are made with reference to Madei, but they are applicable to the other sanctuaries and national park as well.

21. Petitioner is annexing a picture of the BMWLS & NP to display its natural beauty, ecological integrity and wholeness, and its priceless value for wildlife at **Annexure 8.**

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22. All three projects impugned in this petition – namely, the highway project, the electricity transmission project and the railway project – were approved and recommended to the National Board of Wildlife for wildlife clearance by the Goa State Wildlife Board at various meetings held in the years 2016 to 2019. These approvals are challenged in this PIL. For the purpose of easy reference, copies of extracts from the relevant minutes of the meetings of the GSWB, relating to the projects, are collectively annexed at **Annexure 9 (i) to (iii):** Minutes dated 12.10.2016 is Annexure 9 (i); minutes dated 16.12.2017 is Annexure 9 (ii); and minutes dated 2.12.2019 is Annexure 9 (iii).

23. The three projects have also received approval from the Standing Committee of the NBWL (SC-NBWL) at its meeting held on 07.04.2020 (highway and electricity projects), and earlier, on 17.12.2019 (railway project). These approvals are impugned in this petition on several groundings including a challenge to the legality and functioning of the National Wildlife Board itself. For purposes of convenience, the relevant extracts from the meetings of the NBWL dated 17.12.2019 and 7.4.2020 are collectively annexed to this petition as **Annexure 10 (i) and (ii)** respectively.

24. Petitioner has also enclosed at **Annexure 11**, details of all three projects in a collective tabular form for easy reference of this Hon'ble Court.

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Project I: 4-Laning of NH 4 A through BMWLS & NP (Highway project)

25. The petition challenges the proposed widening of a 13 km stretch of the NH-4 A within the BMWLS & NP (km 84-km 97). The approvals granted for the project by the wildlife authorities have been impugned in this petition.

26. The development of national highways falls under the ambit of the National Highway Authority of India (NHAI) and is carried out under the National Highway Development Programme (NHDP). It appears that vide letters dated 19.12.2014 and 03.03.2015, the PWD sought approval from the NHAI to take up the four laning of NH 4 A from Panaji to Goa/Karnataka border in the State of Goa by NHDP IV cell, through the Goa PWD under the NHDP III. Vide letter dated 13.03.2015, the Ministry of Road Transport & Highways, Government of India, accepted the PWD's proposal and granted administrative approval to the PWD to carry out this work. A copy of the letter dated 13.03.2015 is enclosed as **Annexure 12.**

27. The NH 4 A connects the state of Goa and Karnataka, running from Belgavi to Panaji, and is about 153 km in total length. Of this, 83 km falls within Karnataka (km 1-83) and about 70.075 km falls within Goa (km 84-153.075). 13 km of the highway expansion in Goa, beginning at the state border, *falls within the BMWLS & NP*. The existing two lane highway was constructed by the Portuguese colonial government much before the notification of the wildlife sanctuary.

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28. In Karnataka, the work of widening the NH-4 A is being carried out by the NHAI itself. In order to circumvent the provisions of the EIA notification, 2006 and to take advantage of a notification of the MoEF&CC dated 22.08.2013 – doing away with the mandatory requirement of an EC for NH projects less than 100 km – the widening of NH 4A has been divided into two projects in two states, being undertaken by two different departments (in Karnataka, the NHAI, while in Goa its the PWD). This notification has been relied upon by the PWD in its application, stating that no EC is required. A copy of the notification dated 22.08.2013 is enclosed as **Annexure 13.**

29. In its response to a PIL filed before the Hon'ble High Court of Karnataka seeking relief against work that is being carried out by the NHAI in pursuance of the widening of NH-4 A in Karnataka without an EC, the NHAI also relied upon the notification dated 22.12.2013, alleging that the project proposal only involves 83 km of the highway, and hence does not require EC. It appears, however, that the same has not been accepted by the Court, *prima facie*. Vide order dated 24.02.2020, the Hon'ble High Court of Karnataka has recorded that "additional documents tendered today by the learned counsel appearing for the petitioners along with a memo shows that the length of NH-4A which is taken up for widening may be more than 100 kilometers stretching over Karnataka and Goa. If that be so, it cannot be said that widening is undertaken for the length which is less than 100 kilometers." A copy of the order dated 24.02.2020 is enclosed as **Annexure 14.** Recently, the Supreme Court of India, in the *Chardham* matter, has also issued directions in similar circumstances.

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30. It is pertinent to note that about 13 km of the highway in Karnataka passes through the AnshiDandeli Wildlife Sanctuary. However, contrary to the proposal in Goa to widen the highway even through the PAs in Goa, the NHAI has decided not to carry out any widening of the highway through the Anshi-Dandeli WLS and the width of the road is being maintained at the existing width of 12m. A copy of the letter dated 13.02.2019 from the NHAI to the PCCF, Karnataka, giving up the proposal to divert 6.423 ha of forest land from the Dandeli Wildlife Sanctuary, which would have been required to widen and improve the road alignment, is enclosed as **Annexure 15**. Thus it is clear that it is not essential to widen an existing road through a wildlife sanctuary or National Park. It needs to be reiterated that we are talking about the same highway from Goa to Karnataka.

31. In Goa, the existing 13 km stretch of highway passing through the PA is a wide double lane, having the same width as in Karnataka, i.e., with Right of Way (RoW) of 12m, and carriage way of 7m. The PWD's proposal now seeks to widen the double lane highway into a 4 lane highway with RoW of 26m and carriageway of 14m. This is proposed to be done partly by widening the existing highway, but largely by creating completely new roads on viaduct structures under the garb of "road widening." The proposal therefore involves not just widening of certain sections of the existing road but creating a new highway on viaducts in pristine and hitherto untouched parts of the wildlife sanctuary and national park where the existing road cannot be widened due to the difficult nature of the terrain. Such kinds of new intrusions are not permitted even by the impugned Guidelines.

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32. On 15.06.2016, the Goa PWD submitted an online application to the Goa State Wildlife Board (GSWB) for forest and wildlife approval for the proposal to widen the NH 4 A (km 84-km 97) falling within the BMWLS & NP. The application form has three parts. Part I & II are to be filled by the applicant while Part III is to be filled by the Wildlife Warden. Enclosed as **Annexure 16** is a copy of Part I & II of the application with relevant annexures. The applicant states that the proposal involves the cutting of 12,097 trees and the diversion of about 31.015 ha. of protected forest area (24.265 ha in the NP and 6.75 ha in the WLS). The estimated cost of the project is Rs. 59,400 lakhs. The objectives of the proposal, as stated in the application, are to "meet the increased demands of traffic in the area and to reduce travel time, fuel requirements and pollution." Ironically, the applicant subsequently lists heavy traffic through the WLS as a current pressure on the PA (protected area).

33. The justification provided for locating the project in the PA is that "the widening of the existing carriageway is the only feasible option, as far as the technical aspects are concerned, that requires minimum land under forest cover, instead of the construction of a new 4-lane road." It further states that the widening is restricted to the existing RoW as much as possible, with a viaduct structure parallel to it on the valley side.

34. The proposal discloses that the widening will be done partly by hill cutting, and partly by constructing a new road on viaducts through the protected area. As per the Typical Cross Section (TCS) enclosed with

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the application, the widening will be carried out through the protected area in the following ways:

- 4 lane highway at the same level with a raised median – for 85.380 km to 85.980 km with hill cutting of 1.35 ha. and width of 13 m due to hair pin bend on right hand side. Widening on the left hand side of the existing road.
- 4 lane highway with 2 lanes on an elevated structure (viaduct) – on the valley side. Applicable in 7 locations covering a total of 4.027 km of the project road.
- 4 lane highway with all 4 lanes on an elevated structure (viaduct) i.e., construction of a 4 lane elevated corridor where the existing road is not suitable for four lane standards. Applicable in 6 locations covering a total of 3.040 km of the project road.

Thus, it appears that a majority of the 4-laning will be carried out by constructing completely new roads on viaduct structures. All three of the above show the RoW as 26m.

35. The PWD's proposal was first placed before the GSWB at its meeting dated 12.10.2016 at Agenda Item No. 3.3. The Member Secretary (Chief Wildlife Warden) briefed the members about the project which then required diversion of 40 ha. of forest in the BMWLS & NP, of which 15 ha. would be permanently diverted while 25 ha. was for temporary diversion, during the construction phase. The GSWB insisted on over / under passes and an EIA. It was decided that the project would have to be put up again for consideration along with the EIA

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report. A copy of the minutes of the meeting dated 12.10.2016 is enclosed as **Annexure 9 (i).**

36. One year later, the project was again listed on the Agenda of the GSWB meeting dated 16.12.2017 at Agenda Item No. 4.3(ii). The GSWB was now informed that the project involves the diversion of 31.015 ha of BMWLS & NP, out of which 6.75 ha is in the Sanctuary and 24.265 ha is in Park. As concerns were again expressed by members about losing such a large area of pristine forest and they suggested that alternatives be found instead, the GSWB decided that an EIA report of the diversion proposal is necessary and that the EIA must be analysed and considered at the next meeting. A copy of the minutes of the meeting dated 16.12.2017 is enclosed as **Annexure 9 (ii).**

37. On 09.07.2018, an EIA report commissioned by the PWD was submitted to the Chief Wildlife Warden (CWW). The EIA report pertains to the entire stretch of the highway in Goa (km 84 to km 153/075). With regard to the stretch within the PA, the EIA report discloses that the widening of the highway on viaducts requires an "extra" 25.4 hectares of forest land which would be utilized for the construction of the project. Allegedly, after the construction, the vegetation of forest cover will be reinstated except at the pier locations.

38. With respect to evaluating the impact of this proposal on the wildlife and forest habitat in the PA, the EIA report glosses over the nature of this area as a wildlife sanctuary and national park and goes as far as to state that the "faunal species are not having any endangered species and

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will not have any adverse impact due to the construction activity." Further, it records wholesale absurdities such as, "even after the construction phase, the faunal species will not get affected and rather they may increase in number because of the road structures as the project will not obstruct their movement, rather can create habitats for them."

39. Chapter 6 of the EIA report deals with the anticipated impacts and mitigation measures. Even here, the WLS & NP barely find mention. There is no assessment of the adverse impact that such a large project would have on the wildlife and their habitat. Instead, it reiterates blandly and mechanically that there will be no impact on the wildlife. Consequently, the mitigation measures during the construction phase for the WLS & NP also do not address the real concerns that would disturb the wildlife and their habitat, with the sole exception of wildlife crossings. The Environmental Management Plan makes absolutely no mention of the BMWLS & NP and includes no provisions to safeguard the forest habitat, wildlife and biodiversity. It is quite obvious from a reading of the report that no objective, independent assessment of the project was carried out and that the EIA report is an eyewash, prepared merely as a procedural formality, solely to get the project approved and it does not provide any scientific or unbiased assessment of the real damage that the project would cause to the protected areas. Relevant extracts from the EIA report are enclosed as **Annexure 17**. Petitioner craves leave to produce the same before this Hon'ble Court if required during these proceedings.

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40. In contrast to the extremely optimistic assessment in the EIA, both the Wildlife Warden and the Chief Wildlife Warden reported otherwise in Part III of the application form, the relevant section of which is enclosed as **Annexure 18.**

41. The Wildlife Warden's comment on the biodiversity impact is brief. He states that "*the area is rich in flora and fauna as it falls within the Western Ghats and will cause severe impact on disturbance on wildlife of that particular area and loss of habitat.*"(sic). The Impact Report of the DCF is much more elaborate. The DCF states that the "*widening of existing highway is going to do further fragmentation of an important wildlife refuge and corridor of Goa State.*" He elaborates on the likely degradation as follows:

- The land is lateritic in nature with thick vegetation, having canopy density ranging between 0.6-0.8. The vegetation ranges from stunted bushes to tall trees. Widening of existing road to four lanes will involve felling of more than 12,000 trees as per valuation report and will create edge effect by altering plant communities and erode plant diversity at site.

- Further, the gap will promote weeds and exotic species that out-compete native plants and lead to alter animals' use of habitats.

- Also, the cutting of the hill side and filling on the valley side requires blasting operation which may cause severe impact of disturbance to the wildlife of that particular area in the form of noise and loss of habitat. As the work progresses there will be

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more chance of increased landslides and soil erosion due to heavy rain resulting in damage to the vegetation and siltation of rivulets existing in the area.

- In addition, changes may occur in the ecological and ecosystem process such as pollination, seed dispersal and carbon storage. The maximum portion of the area to be acquired and converted along the road section is having steep slope, i.e., valley of the National Park and there is every possibility to cause severe damage to the fragile forest ecosystem by soil erosion and landslides, degrade soil quality, and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people depend.

- Although the user agency has agreed to adopt the high costs of wildlife friendly mitigation measures and agreed to build underpasses and overlays, however it may not be possible to prevent damage caused to wild animals from vehicular traffic passing through the PA especially at night, when blinded by bright headlights. Over time, as animals learn to avoid roads, busy multilane highways become barriers that hinder wildlife movement, fragment populations, and restrict gene flow.

42. In other words, the Impact report, prepared by the DCF in terms of Section 29 and 35(6) of the Wildlife Protection Act, 1972, predicts severe damage to the wildlife, not just during the construction phase, but even in the future. The above mentioned sections 29 and 35(6) of the WPA, 1972, mandate that no destruction of wildlife or of wildlife habitats within wildlife sanctuaries and National Parks can be permitted

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unless such destruction, exploitation or removal is **necessary for the improvement or better management of the wildlife.** [Emphasis added.]The DCF's Impact Report clearly discloses that the project will open up the 'closed forest system' of the PA besides adversely impacting the wildlife. At any rate, it is not a project for the improvement or better management of the wildlife.

43. It is shocking therefore, that despite his strong adverse comments, the same DCF then, contrary to reason and logic, does an inexplicable volte face and recommends the project, with some minor suggestions and precautions to be taken with regard to soil erosion and the inclusion of underpasses. Petitioner submits that it is the human beings that should be forced to use passes and underpasses in a protected area, rather than the wildlife. This is wildlife habitat first and foremost.

44. On 21.11.2019, the GSWB was reconstituted and shortly thereafter, on 02.12.2019 a meeting of the newly constituted Board was held at the residence of the Chief Minister. A copy of the notification dated 21.11.2019 reconstituting the GSWB is enclosed as **Annexure 19.** It can easily be noted that the persons expressing doubts about these projects during the earlier meetings have now been unceremoniously dropped from the new Board.

45. With regard to the Highway project, (listed at Agenda item No. 2) the members were informed that this proposal was discussed in detail at the last meeting, and that an EIA report had been submitted by the PWD. The minutes further disclose that some of the new expert members of the Board, on coming to know of this project for the first time,

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expressed apprehensions and concern about the destruction of wildlife as well as damage to the Sanctuary from diversion of such large tracts of forest. However, the PWD cited the need to improve road traffic management in the PA and that under / over passes were being created for animals to facilitate their movement from one side of the road to the other. The PWD also emphasized that diversion of part of the selected forest area is temporary only and that 19 ha. of the project area shall be eventually returned to the Forest Dept once the project is completed. The minutes record that after some discussion the GSWB decided to recommend the project to the National Board for Wildlife for consideration, with a pious direction to the user agency to minimise the damage to wildlife habitat, minimum felling of trees, and to deposit 3% of the project cost with the Forest Dept. A copy of the relevant extract from the minutes of the GSWB dated 02.12.2019 is at **Annexure 9 (iii).**

46. It appears that the discussion that took place on the project at the GSWB meeting was not satisfactory to all, as shortly thereafter, a representation was made by 6 members of the GSWB to the Member Secretary vide letter dated 16.12.2019, expressing concerns about the lack of preparatory notes for the agenda items and the hasty manner in which the agenda was sought to be completed. Specific reference was made to the approval granted to the 3 projects in the BMWLS and the Mollem NP, thereby evidencing discord among the members of the Board. Briefly, the letter raises the following issues:

- The notes on the agenda of the meeting were handed over at the start of the meeting, giving the members little or no time to understand the projects that had come for approval and their merits/demerits.

- No copies of the impact studies were circulated for the members to take any informed decision in these matters.
- The three proposed linear projects, all of them in one PA, will further fragment the already fragmented PA. A total of 216 ha. Of forests is sought to be diverted for these projects, most of which is pristine and virgin in nature.
- While the notes provided spoke of individual projects and the forest to be diverted, the impact of these projects, especially the cumulative impact on biodiversity, does not find mention.
- The railways and road projects are part of the larger scheme of things and will have an impact on wildlife throughout the stretch since wildlife exists beyond the boundaries of the PAs.
- The projects ought to have been presented by the project proponent instead of the Forest Dept as this sent a wrong signal to everyone.

47. It appears these 6 Board members demanded an assessment of the cumulative impact of these linear projects prior to making a decision. It is quite obvious from the letter that the projects approved in the BMWLS & NP were not discussed with the thoroughness that they deserved, in view of the magnitude of destruction likely to be caused to the PA. It is also not clear if the Board did recommend the project, as stated in the minutes, since the 6 Board members have refuted this. A copy of the letter dated 16.12.2019 is enclosed as **Annexure 20.** These

allegations are confirmed by some of the Board members publicly in an article in the *Indian Express* dated 03.07.2020 hereto annexed to this petition as **Annexure 21.**

48. In March, 2019, the central government imposed a total lockdown throughout the country in response to the worldwide pandemic caused by the novel coronavirus (COVID-19). As the population of the country dealt with a terrifying health emergency, and the consequences of a complete lockdown, a meeting of the SC-NBWL was held on 07.04.2020, via video conferencing, wherein, on the same day, two of the three Goa projects impugned in this petition were approved, viz. the Highway project and the Electricity project. The Highway project is listed at Agenda Item No. 57.3.3. It may be noted that although the Highway project was placed before the SC-NBWL for the first time, it was immediately approved, perhaps after the members were informed that the project was favoured both by the State's Chief Wildlife Warden as well as the GSWB. It does not appear that the reservations of 6 non-official expert members of the GSWB to the project had been communicated to the SC-NBWL. At any rate there was no discussion on the all important issue of cumulative impact of three projects in the same PA and NP or whether such projects are even permitted by the Wildlife Act. A copy of the relevant extract of the impugned minutes of the meeting of the SC-NBWL dated 07.04.2020 is at **Annexure 10 (ii).**

49. The staff of the petitioner made a detailed site visit of the entire present alignment through the BMWLS and NP and noted the number of trees marked for eventual felling for the road expansion project. It was

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observed that all trees, including several mature trees by the side of the existing road, and often standing in front or adjacent to marked trees, did not carry any number on their trunks. It is thus quite apparent that there has been gross underestimation of forest trees which will need to be felled, since giving an exact number of trees for felling might cause consternation. The team also found rich biodiversity areas, and water streams, adjacent to the existing road, all of which would have to go or would be severely damaged in road construction and development. In several sections it was noted that it is physically impossible to expand the existing road, due to sharp drop on one side of the road (towards the valley), with a steep rocky climb on the other. The impossibility of carrying out any expansion of the existing road has forced the project proponent to propose construction of an entirely new road and have this carried on a viaduct across parts of the sanctuary, a development that is completely disallowed even by the MOEF&CC Guidelines discussed below.

50. Petitioner submits that there are several reports, recommendations and guidelines of the various agencies of the Government of India who are responsible for the protection of wildlife and forests, which categorically prohibit new development activities in the PAs. Petitioner draws to the attention of this Hon'ble Court the National Wildlife Plan 2002-2016, the recommendations of the SC-NBWL and the MoEF&CC's Guidelines, all of which prohibit new roads or the widening of roads through and in the vicinity of PAs. Excerpts from these documents are briefly summarized below.

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(A) The **National Wildlife Action Plan 2002-2016** published in 2002 by the MoEF&CC states: "*The Ministry of Surface Transport is to plan roads, highways, expressways in such a manner that all national parks and sanctuaries are bypassed and the integrity of the PAs is maintained. Wildlife corridors also need to be avoided or mitigative measures to be employed.*" The relevant extract of the National Wildlife Plan 2002-2016 is enclosed as **Annexure 22.**

(B) The **Report of the Sub-Committee of the NBWL, 2014:** In 2013, a sub-committee was constituted by the SC-NBWL to frame guidelines with respect to roads within PAs. The preamble to the report provides a detailed note on the effects of such development through the PA and is reproduced below:

"Roads are an essential part of India's development, providing vital connectivity and transportation across the country. Yet, when they intersect natural areas they have wide ranging and complex impacts on natural areas and wild species inhabiting these areas. Within India's protected areas, the extensive impact of roads remains poorly understood, except in the obvious and serious instance of wild animal mortality due to road accidents. Elsewhere, it has been well established that roads have detrimental ecological effects in both terrestrial and aquatic ecosystems. Roads further fragment highly fragmented habitats. They break forest contiguity, impinge on forests and well-worn migratory paths of animals, break tree cover and canopy, slice vegetation -

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all of which gravely impact wildlife. Roads cause soil erosion and landslides. Crucially, roads are the first step to ancillary development and an increasing human footprint in the area, thus leading to accelerated developmental, tourist and hunting pressures, increase in pollution, litter and various disturbances. In PAs in the mountainous region, construction of roads and their widening has grave consequences, including landslides and erosion."

The recommendations in the report are:

"1. The status quo must be maintained on all roads passing through National Parks and critical Tiger habitats. The roads could be maintained and repaired in the best manner possible in their current form and present width. No widening or up gradation of the road is to be allowed. If it is an existing tarred road, it shall be maintained as such and no widening of the tarred surface or the widening of the road itself, may be done.

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2. For Wildlife Sanctuaries and Conservation reserves, the same norms as in the case of National Parks and core, critical Tiger habitats shall apply......It may be stressed again, that the width and status of the existing roads shall remain the same and no upgradation will be allowed.

3. Where roads approaching / passing by National Parks/core, critical Tiger reserve/Wildlife Sanctuary are within a radius of 1 km thereof, or within the eco sensitive zone, whichever of the two

is lesser, would be treated on the same basis / guidelines and applicable to the PA category that it is in proximity of."

51. Further, the report states that in planning roads within and in the vicinity of protected areas, the following basic principles are to be followed in order of priority: Avoidance, Realignment and Restoration. The foremost option is to altogether avoid areas that are within or in the vicinity of any PA and to find alternatives that are socially and ecologically more appropriate. As a corollary to the first principle, all project proponents must investigate and demonstrate as to how they have considered alternative routes before their proposals can be considered for approval by the Standing Committee of the NBWL. The basic principles within the sub committee's report even speak of phasing out and decommissioning existing roads through PAs where alternate alignments are available. The report of the sub-committee is enclosed as **Annexure 23.**

52. While the NWAP and the recommendations of the Sub committee of the NBWL expressly prohibit any roads through protected areas, Guidelines issued by the Ministry in 2012 and 2014 attempt to dilute these protections, as well as the statutory protections within the WLP Act to enable such development "in the most exceptional circumstances." In any case, the impugned projects do not satisfy even the mandate of these diluted protections. Excerpts from these Guidelines are briefly summarized below.

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(A) The **MOEF&CC's Guidelines for Non-Forestry Activities in Wildlife Habitats (19.12.2012)** state that "*any activity involving use or diversion of any part of a notified Protected Area may be considered only under* ***most exceptional circumstances****, taking fully into account its impending impact on the biodiversity of the area, and consequently on the management of the Protected Area. A critical part of this balanced approach is to spell out the feasibility of mitigation to address the impacts without compromising the management objectives of the Protected Area. The activities to be taken up in the identified wildlife habitats also need to comply with the orders of the Hon'ble Supreme Court in addition to the statutory requirements as provided in the Wild Life (Protection) Act, 1972.*" Relevant extract is enclosed as **Annexure 24**.

(B) The **MOEF&CC's Guidelines for Roads in Protected Areas (22.12.2014)** were issued by the Ministry, accepting the report and recommendations of the NBWL sub-committee (Annexure 23) However, the Guidelines severely diluted the strong recommendations against roads or the widening of existing roads in protected areas made by the sub-committee. As they stood, these Guidelines directly conflicted with the law, that is, the requirements of Section 29 and 35(6) of the Wildlife Act, 1972. The impugned Guidelines, enclosed as **Annexure 25** state:

1) The principles provided in the report of the sub-committee have been adopted as a generic principle.

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> 2) New roads shall not be proposed inside National Park and Sanctuaries.
>
> 3) Cases of widening of existing roads, **if unavoidable** due to reasons of purpose and alignment, could be placed before the Standing Committee, which shall consider such cases, keeping in view the feasibility of mitigation measures, irrespective of cost. [Emphasis, ours]

53. Applicant states that in the case of the Goa segment through the BMWLS & NP, this is wildlife habitat. The terrain is hostile to development and it is absolutely essential that the width of the road through the existing WLS & NP is not expanded. There is a fully operational two lane highway constructed through this terrain several decades ago. It is essential that speed be reduced and traffic move with abundant caution. During a recent visit to study the area, applicants's staff found a porcupine smashed by a vehicle on the existing road. Photograph of the animal-kill is at **Annexure 26**. In urban areas, silence zones have been declared around courts, hospitals, schools, etc. Speed limits are installed even for distances between towns like Mapusa and Panaji. Such restrictions are all the more required within a wildlife sanctuary, since the territory belongs to the wildlife and their rights are paramount.

54. In view of the above, the applicant submits that the approvals granted by the GSWB and the SC-NBWL to this project are in violation of the provisions of the Wildlife Protection Act, 1972 as the 4 laning of this highway, by no stretch of imagination, could constitute any benefit to

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the wildlife or the management of the protected area and that therefore it is liable to be quashed. Moreover, this aspect has not been considered by the Boards who have, in complete dereliction of their statutory duty, approved this project in haste and without proper scrutiny. As stated earlier in para30, the same authority (NHAI) has given up any proposal to widen the highway running through the Anshi-Dandeli sanctuary.

55. There are two other linear projects which have also been approved both by the GSWB and the SC-NBWL in the BMWLS & NP, namely, the Goa-Tamnar Transmission Project, and the doubling of the railway tracks from Castlerock to Kulem through two segments of the sanctuary. Their approvals are also challenged in this petition as both are also cutting through the same wildlife sanctuary and NP. The details of the two projects are discussed below.

Project II: The Goa - Tamnar Transmission Project (GTTP) (Electricity project)

56. The GTTP is a part of the 400 kV D/C Narendra (Karnataka) – Xeldem (Goa) Transmission Line which starts at Narendra village in Dharwad District, Karnataka and terminates at 400/220 kV substation at Xeldem in Goa. Its purpose is to provide additional 400 kV feed to Goa and additional system for power evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool. About 3.5 km of the transmission line is proposed to be constructed through the BMWLS.

57. Vide letter dated 15.06.2017, prior approval was granted by the Government of India in terms of Section 68 of the Electricity (Supply) Act, 2003, to M/s Goa-Tamnar Transmission Project Ltd, an SPV for the transmission scheme. A copy of the letter dated 15.06.2017 is enclosed as **Annexure 27.** This letter did not impose a condition that the alignment must avoid wildlife sanctuary and national park areas. Thus it is clear that the alignment was approved without knowing it was passing through PAs.

58. Thereafter, in 2018, the project proponent submitted an application for wildlife clearance for the 3.5 km stretch of the line proposed through the BMWLS. Part I and II of the application along with relevant annexures obtained from the website is enclosed as **Annexure 28**. The application discloses that the 3.414 kms stretch required for construction / erection of the line will require a width of 46 mtr width. Hence diversion of 11.54 ha of forest area and felling of 4146 trees is required. The estimated cost of the project is Rs.58.2 lakhs.

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59. In its justification for locating the project through the PA, the applicant states that the line is required to augment the existing power deficit in the State. Three alternatives were considered, all of them through the PA! The route selected, according to the contractor, involved the least amount of forest land and felling of trees.

60. Part III of the application, enclosed as **Annexure 29,** includes an impact report of the project, prepared by the DCF in terms of Section 29 and 35(6) of the Wildlife Protection Act, 1972. As stated earlier, these

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provisions mandate that no destruction of wildlife or wildlife habitats within wildlife sanctuaries and National Parks can be permitted unless such destruction, exploitation or removal is necessary for the improvement or better management of the wildlife. The impact report prepared by the DCF clearly states that the project will harm the wildlife in the BMWLS. *"Laying of transmission line in this PA is going to cause disturbance in the landscape, disrupt rich biodiversity and further fragment habitat of an important wildlife refuge and corridor of the state"* (sic) are the opening remarks of this report. It then provides details of how the project will impact negatively on the BMWLS. These include:

- The project will involve felling of more than 4146 trees and 985 cane clumps and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds and exotic species that outcompete native plants and lead to alter animals' use of habitats.

- Actual execution of works such as felling and transportation of forest produce from the site may cause severe impact of disturbance to wildlife of that particular area in the form of noise and loss of habitat.

- Further, there will be every possibility to form rills and gullies resulting in the increase in soil erosion during the rainy season resulting in damage to vegetation and siltation of perennial rivulet 'Ragada' existing in the area.

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- Changes may also occur in ecological and ecosystem processes such as pollination, seed dispersal and carbon storage.

- The demarcated strip area proposed to be acquired is having steep as well as gentle slope and there is every possibility to cause severe damage to fragile forest ecosystem by soil erosion and landslides at steep portion, degrade soil quality and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people from Surla, Tambdi and Sacorda village depend. [The terrain is undulating with heavy rainfall and gradient above 30 degrees]

- Although the user agency has agreed to cut minimum trees requirements and to adopt wildlife friendly mitigation measures, it may not be possible to prevent damage caused to the biodiversity of that particular area.

However, despite the strong adverse comments he made on the project, the DCF eventually recommended the project "as it is of importance to the economy." Petitioner submits that such purposes are extraneous to the objectives of the Wildlife Protection Act, 1972. They are also unconstitutional.

61. It is pertinent to note, that in Karnataka, the proposal for diversion of forest area for the same project has been rejected by the DCF Haliyal, CCF KanaraSirsi and the Conservator of Forest of the AnshiDandeli Tiger reserve in the interest of Western Ghats and Biodiversity, and due to destruction of tiger habitat and degradation of surrounding forest

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areas that this project would cause. Copies of the reports rejecting the proposal are enclosed as **Annexure 30.**

62. The GTTP proposal was taken up for the first time at the first meeting of the newly constituted GSWB held on 02.12.2019, (Agenda item No 3). There was opposition to the project from some of the members of the Board due to loss of wildlife and felling of a large number of trees, and they sought to know why the present route which involves the sanctuary was selected. However, the user agency informed that of the three routes initially identified, this route was selected in consultation with the Forest department and a minimum of wildlife sanctuary area was involved. Apparently, therefore, the GSWB agreed to the proposal, and directed the user agency to restrict the number of trees to be cut to below 1000 and to deposit 3 percent of the project cost with the Forest Department of Goa.

63. The Petitioner submits that while the minutes of the GSWB meeting disclose that a Biodiversity Impact Assessment study and a Biodiversity Management Plan prepared by ERM Gurgaon have been submitted, the same is not available online with the application. The Petitioner has filed an RTI application for a copy of the report and craves leave to produce and rely upon the same as and when it is received. The report has not been approved by the Goa State Biodiversity Board. The area to be negatively disturbed is one of the 8 biodiversity hotspots of the planet.

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64. As stated in paragraph 46 and 47 above, shortly after the GSWB meeting concluded, 6 members of the State Board represented to the the Member Secretary vide letter dated 16.12.2019 (Annexure 20) that the proceedings were unsatisfactorily conducted and that they had no opportunity to adequately consider the implications of the three projects approved in the BMWLS and the impact they were bound to collectively have on the sanctuary. Nevertheless, it appears, that the objections of the members were overlooked and the decision of the GSWB was placed before the Standing Committee of the NBWL at its meeting held in the midst of the coronavirus pandemic dated 07.04.2020 (Annexure 10 (ii) - Agenda Item No 57.3.2). The proposal was approved at the first instance, the minutes recording that the CWW and the State Board had approved the project. Notably, the categorical condition imposed by the State Board to limit the tree cutting to below 1000 finds no mention. It merely records that tree felling should be minimum.

65. Petitioner has already referred in paras 50-52 above to the various reports and guidelines of the statutory authorities for the protection of wildlife with regard to projects proposed in PAs. These documents namely, the National Wildlife Policy, and the recommendations of the Standing Committee of the NBWL relating to roads in PAs and the MoEF&CC's Guidelines are at Annexures 22, 23, 24 and 25 respectively. The Hon'ble Supreme Court has time and again said that economics cannot take precedence over environment and this is particularly relevant to the wildlife areas in the country in addition to

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the statutory requirements as provided in the Wild Life (Protection) Act, 1972.

66. Further, the MoEF&CC has issued special Guidelines for laying of transmission lines through forest areas dated 05.05.2014, and these are enclosed as **Annexure 31.** Recognizing the threat such lines pose to the wildlife, the guidelines necessitate that in case of transmission lines passing through protected areas, only insulated conductors shall be used in order to prevent electrocution of animals. To the best knowledge of the petitioners, no such condition has been mandated in the approvals granted to the project. In any event, such guidelines are contrary to the Wildlife Act.

67. Some work of clear-felling of plots of forest and construction of roads through forest areas in the village of Sangod have been carried out in connection with this project, outside the PA. Most of the work is illegal and would have to be stayed.

Project III: Doubling of railway line from Castlerock to Vasco (Railway project)

68. The third proposal affecting the wildlife sanctuary is from the South Western Railway for doubling the existing railway line from Hospet to Vasco. It is being executed by M/s Rail Vikas Nigam Limited (RVNL). The existing Hospet-Tinaighat-Castlerock-Kulem- Vasco railway line was first laid in 1900 and connects iron ore mining/industrial areas in Hospet to the Mormugao Port in Vasco. However, Karnataka has its

own ports, including Karwar and Mangalore, which can be used for the same purposes and are in fact being so used.

69. The Ministry of Railways sanctioned the doubling of the railway line between Hospet-Tinaighat-Vasco in the states of Karnataka and Goa, in two phases, with a total length of 345 km in 2010. The alignment of the proposed railway line runs parallel in some parts to the existing line and passes through prime forested tracts. Castlerock forests are part of Dandeli-Anshi Tiger Reserve (DATR), in Karnataka, while forests between the Goa-Karnataka border and Kulem and Vasco/Madgaon fall within the BMWLS in Goa.

70. The justification for locating the project in forest land is that the existing single railway line is saturated. To meet the increasing demand and future growth, the line has to be doubled so that more goods and passenger trains can be run to meet the existing demand. The applicant railway states that there is no alternative as the alignment invariably has to pass through the forest. As stated earlier, extra freight requirement for coal and iron ore is for benefit of Karnataka, not Goa, and certainly not for the wildlife. Use of ports in Karnataka would be a good alternative.

71. Phase 1 comprises the line between Hospet and Tinaighat and Phase 2 comprises the line between Tinaighat and Vasco. This petition is concerned with Phase 2 which passes through the BMWLS & NP in two parts and thus 2 separate proposals have been submitted, the first for the part from Castlerock to Kulem, and the second, for the part from

Kulem to Vasco. Strangely, the second proposal (Kulem to Vasco/Madgaon) does not appear to have been approved by the GSWB in 2017 as alleged -- in fact, the EIA report is dated March 2018 -- and mention of this segment comes for the first time only in the minutes of the GSWB meeting dated 02.12.2019.

72. First Proposal: Castle Rock to Kulem: As per the application for wildlife approvals made by RVNL, this project involves the diversion of 113.857 ha. of forest from the PA area and felling of 18541 trees. Estimated cost of the project is Rs.9000 lakhs. Four underpasses, each admeasuring 12m in width and 5.65m in height, have been proposed as mitigation measures. A copy of Part I and II of the application and the relevant annexures are enclosed as **Annexure 32.**

73. Part III of the application form, enclosed as **Annexure 33**, also includes an impact report of the project, prepared by the DCF in terms of Section 29 and 35(6) of the Wildlife Protection Act, 1972. The report clearly states that the doubling of the track will adversely affect the BMWLS as it will seriously fragment this important wildlife refuge and corridor of Goa State. The impact report lists other adverse effects as follows:

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- The railway project of Castlerock-Kulem doubling line will divert forest land of 120.875 ha of which 113.857 ha will be in BMWLS / Mollem NP and 7.018 ha in Reserve forest.

- The doubling of track will involve felling of more than 18,541 trees and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds

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and exotic species that outcompete native plants and lead to alter animal use of habitats. (sic)

- The hill cutting and filling on the valley side may cause severe disturbance to wildlife of that particular area in the form of noise and loss of habitat. As the work progresses, there will be more chances to increase landslides and soil erosion due to heavy rain resulting in damage to vegetation and siltation of rivulets existing in the area.

- Changes may also occur in ecological and ecosystem processes such as pollination, seed dispersal and carbon storage.

- The maximum portion of area to be acquired and converted along rail section is having steep slope, i.e., the valley part of the National Park and there is every possibility of severe damage to the fragile forest ecosystem by soil erosion and landslides, degraded soil quality and depletion of aquatic reservoirs and water catchments of rivers on which both wildlife and people depend.

- Although the user agency is willing to adopt the high costs of wildlife-friendly mitigation measures and build underpasses and overlays, it may not be possible to prevent damage caused to wild animals from traffic passing through PA, especially at night when the animals are blinded by bright headlights.

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74. As with the two other projects challenged in this petition, despite his strong adverse comments, the DCF made a few suggestions for mitigating the damage and recommended the project. His suggestions included construction of bandharas to prevent soil erosion, construction of over / under passes, signage to control speed limits, fencing at some places, etc.

75. It is extremely pertinent to note that a proposal for the double tracking of this same railway line has previously been submitted, and duly rejected by the CWW, as the proposal would entail serious fragmentation and destruction of the wildlife sanctuary. However, this subsequent proposal has been recommended despite that fact that it too, would be severely destructive, and not in any way beneficial to the wildlife and the management of the protected area.

76. This proposal had first been placed before the State Board at its meeting dated 12.10.2016 (Agenda item No.3.3). The minutes record that when the Board was questioned on the need for doubling of the track in the sanctuary since substantial land would have to be acquired which would impact the sanctity of PA, the Chairperson of the Wildlife Board responded that increase in frequency of trains would reduce the pressure on road network and enable more passenger trains to/from south Indian states of Tamil Nadu, Telangana, Andhra, etc. After the Member Secretary informed of the various measures that the Railways had been advised to take to facilitate animal crossings, the Board directed the project proponents to follow up with a diversion proposal as per FCA guidelines and put the project up again for consideration of

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the Board along with EIA report and area for compensatory afforestation. The relevant extract of the minutes of the meeting is enclosed as **Annexure 9 (i).**

77. The project was next discussed at the meeting of the State Board held on 16.12.2017 (Agenda Item 4.3). Rather surprisingly, the minutes record that the proposal had received in principle approval at the earlier meeting. It is pertinent to note that the minutes of the previous meeting do not reflect any "in principle approval" -- the minutes only record "in-principle" approval by the state government, not the Board -- nor is there any provision in law for in principle approvals to be granted by the State Board. The minutes are not clear as to whether the EIA report was placed on record at the meeting. However, even if this were done, it is obvious that no opportunity was given to members to examine and study the EIA report and to appraise the project, especially as it is proposed in a PA. Hence, the Board ought not to have approved the project until there was thorough examination of the EIA and its projected impact. However, proceeding on the basis that an in-principle approval had earlier been granted, the Railway authority was merely asked to ensure that properly designed under / over passes would be created wherever required based on ongoing camera trap survey and to regulate the speed of the trains by fitting them with GPS, so that their movement could be monitored. The Board then recommended the proposal to be forwarded to the NBWL for consideration as per the FCA, 1980. Extract of the minutes of the meeting dated 16.12.2017 is at **Annexure 9 (ii).**

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78. Petitioner has obtained a copy of the EIA report which clearly evidences the rich biodiversity of this area and the threat that the railway project would pose to the wildlife sanctuary. The EIA states that the area already experiences high level of disturbance due to continuous movement of railways and other private vehicles. It is obvious that the disturbance will only increase if the line is doubled.

79. The EIA report details the various threatened and endangered species that live within these forests, the natural resources, and water bodies that would be affected. A number of studies that have been conducted are enclosed with the EIA report. A broad landscape scale mapping of vegetation and land use was carried out and details of the diversity of plants and trees in the region plus selected animal taxa, namely, butterflies, odonates, fishes, amphibians, reptiles, birds and mammals are recorded in the report. Extracts from the EIA report which give the details of the plants and animals and the biodiversity found in this area are at **Annexure 34.**

80. In summary, some of the concerns expressed in the EIA report are as follows:

(i) Major impacts on mammals are accidental killing by trains. Traffic is expected to double with doubling of track and would lead to more such accidents.

(ii) The area already experiences high level of disturbance due to continuous movement of railways and other private vehicles. Some areas in BMWLS, like the Dudhsagar waterfall, which is a frequently visited tourist spot, are already creating pressures on the habitat.

(iii) The proposed doubling of the railway line can potentially cause damage to the protected forests on either side of the track, even if it is aligned in parallel. Some of these effects may spread beyond the railway track itself and lead to degradation of the habitat. Expansion of the railway line will lead to destruction of 1.17 ha of forests. This however, is the area lost to the railway line itself. Accounting for the damage caused from movement of construction material; dumping of construction waste and movement of construction personnel will lead to further loss of habitat.

(iv) With trees being felled for track laying, the resources available for wildlife in terms of fruiting trees will be fragmented. The habitat modification would impact fruit dependent mammals such as langurs and other smaller mammals. The general quality of the habitat itself will deteriorate further with increased human movement.

(v) Several critically endangered mammals, insects, amphibians are found in this region and the changes of siltation and water chemistry besides pollution of water bodies would impact their diversity and survival.

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(vi) The pollution of water bodies tends to increase the abundance of omnivore fish population resulting in decline of specialist herbivore, insectivore and algivore species of fishes

(vii) Major impact on bird species would be the loss of nesting sites, loss of keystone species and prey availability for the insectivorous birds.

(viii) Amphibians indicate the prevailing condition of an ecosystem and they are extremely sensitive to habitat modification. Large numbers of species described from the Western Ghats are endemic and are found in a range of habitats and micro-habitats. Proposed project would definitely impact these species.

81. Second Proposal: Kulem to Madgaon: As per the RNVL's application for wildlife approvals, this project involves the diversion of 14.42 ha of forest from the PA and felling of 2217 trees. The estimated cost of the project is Rs.20,700 lakhs. A copy of the application (Part I and II) and the relevant annexures are enclosed as **Annexure 35.**

82. Part III of the form enclosed as **Annexure 36** also includes an impact report of the project, prepared by the Dy. Conservator of Forest (Wildlife & Eco Tourism) in terms of Section 29 and 35(6) of the Wildlife Protection Act, 1972. The impact report prepared by the Dy. Conservator of Forests is exactly the same as prepared by him for the first proposal and similarly states that the *doubling of tract will further fragment an important wildlife refuge and corridor of Goa State.*" Pertinent points for consideration are also the same as in the case of the

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earlier proposal, except for correctly detailing the number of trees to be felled and forest area to be affected. As in the previous case, he recommended the project despite his reservations. (para 73-74 above)

83. An EIA report for the project, enclosed at **Annexure 37** also points to the grave threat that this project would pose to the wildlife habitat. The study area is Sonalium-Kulem–Kalem sector of the railway line. It points to the high concentration of wildlife around this area.

84. The two railway projects, Castle Rock to Kulem, and Kulem to Madgaon were placed before the Standing Committee of the NBWL at its meeting dated 17.12.2019 and approved at the same meeting. The two sectors were listed at Agenda Item No 3 (Castlerock to Kulem) and Agenda item No.56.3.2 (Kulem to Vasco/Madgaon). The minutes record that after briefing the Standing Committee with the bare details of diversion of forest land in both the sectors, the IGF(WL) informed that the State Chief Wildlife Warden had recommended the proposal with the condition that the railway authorities may explore the option of putting some gate in the tunnels which can be opened through some mechanical / electronically controlled switches before train arrival so as to ensure the wild animals are not trapped in some of long tunnels when no train is in the tunnel. A copy of the relevant extract of the minutes of the meeting of the Standing Committee of the NBWL is enclosed as **Annexure 10 (i).**

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85. While the NBWL minutes record that the proposal for the Kulem to Madgaon stretch was approved by the State Board at its meeting dated

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16.12.2017, no such discussion on this sector took place. It is only at the State Board's meeting on 02.12.2019 that there is a mention of the Kulem to Vasco/Madgaon stretch **(Annexure 9(iii))**, where at Agenda Item No. 1 the railway project, despite having two separate proposals, is now collectively titled "Doubling of railway track in Castlerock-Kulem-Kalay-Margao section of the South Western Railway" and the minutes record that State Board approval has already been granted for this project.

86. Petitioner states that the railways have announced land acquisition of lands belonging to private individuals and others for portions of the track for doubling purpose outside the boundaries of the PA.

87. As stated earlier, the provisions of Section 29 and 35(6) of the Wildlife Act provide for no exceptions. The activities to be taken up in the identified wildlife habitats must comply with the orders of the Hon'ble Supreme Court in addition to the statutory requirements as provided in the Wild Life (Protection) Act, 1972. More pertinently, MoEF has also itself issued a circular dated 05.12.2017 concerning railway projects which categorically states that railway projects passing through sanctuaries/parks/tiger reserves amounts to destruction of habitat as per Section 29, 35 (6) and 38 (O) (1) (g) of WPA, 1972. A copy of the circular is enclosed as **Annexure 38.**

88. The petitioner submits that it is evident that these three proposals have been cleared by the GSWB and the SC-NBWL in haste and without proper consideration of the wildlife and forest aspects. All three

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projects were approved by the GSWB as soon as an EIA report was submitted, giving the expert members no chance to actually study the reports. Despite a demand for a cumulative impact assessment of all projects by members of the Board, no such assessment has been carried out till date. No mitigation measures, except animal crossings, have been proposed.

89. It is deeply distressing that the NBWL through its Standing Committee, so constituted for the protection of wildlife habitats and the conservation of wildlife, has approved projects of such immense scale, at a meeting held via video conferencing, without proper deliberation upon the scale, impact and necessity of such construction and activity within the protected area. Present policy permits only those activities within PAs which are of direct benefit to wildlife and wildlife habitats. It is wholly unjustifiable that such linear projects have been approved by the Standing Committee of the NBWL, in complete contradiction to the provisions of the WLPA, its own recommendations and the MoEF&CC's guidelines regarding projects within and in the vicinity of protected areas. The policy framework in this regard has been completely ignored, and the pristine eco sensitive area has been opened up to construction and development that will have disastrous and irreversible impacts upon the wildlife and their habitat.

90. A news article published in 'The Hindu' dated 08.04.2020, quotes an expert who was privy to the virtual meeting of the Standing Committee of the NBWL stating that "*In a virtual conference, it's difficult to scrutinise maps that show the location of the proposed projects. There*

was also no occasion to ask questions of officials for clarifications." A copy of the news article dated 08.04.2020 is enclosed as **Annexure 39.**

91. Vide letter dated 11.07.2020, the Petitioner has written to the NTCA, highlighting the issues with the impugned approvals granted to the 3 linear projects requesting the NTCA to ensure that, under no condition, any further work is done on these projects till they are properly assessed for their impact on the proposed tiger reserve by the NTCA. A copy of the letter is enclosed as **Annexure 40.**

92. The Petitioner also submits that the Standing Committee of the NBWL, which took these decisions in respect of the 3 projects, is illegally appointed and functioning de hors the statutory scheme. It has in fact illegally usurped the authority of the NBWL. Rather than working under the guidance and direction of the NBWL -- as contemplated under the Wildlife (Protection) Act, 1972 -- the Standing Committee has virtually become the NBWL. The Standing Committee is now a permanent Stand-In Committee for NBWL, making a nonsense of the Supreme Court's directions to set up the NBWL.

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93. The WLPA was amended in 2002 to include within its provisions the constitution of the NBWL. Accordingly, Section 5A empowers the Central Government to constitute a National Board for Wildlife. Section 5B further empowers the NBWL so constituted, to constitute a Standing Committee for the purpose of exercising such powers and performing such duties as may be delegated to the Committee by the National Board.

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94. The NBWL was formally constituted in the year 2003. On 14th September 2010, a notification was issued by the MoEF, constituting the Standing Committee of the NBWL, which describes the powers of the Standing Committee in the following terms: "The Standing Committee may exercise all the Powers exercised by the National Board for Wildlife, under the Wildlife (Protection) Act 1972, or the Rules made thereunder, unless otherwise specified in this notification." The notification details the terms of reference for the Standing Committee. A copy of the notification dated 14.09.2010 is enclosed as **Annexure 41.**

95. Thereafter, the NBWL was reconstituted vide notification dated 22.07.2014. On the very same day, the Standing Committee was also reconstituted by the MoEF&CC. Copies of the notifications are at **Annexure 42 collv**. Soon thereafter, a Writ Petition (*Chandra Bal Singh Vs UOI &Anr* WP (C) No. 736 of 2014) was filed before the Hon'ble Supreme Court challenging the constitution of the NBWL and the notification dated 22.07.2014 as being in violation of Section 5A of the WLPA. As per order dated 25.08.2014, the Hon'ble Supreme Court was tentatively of the view that the NBWL has not been constituted in consonance with Section 5A of the WLPA. The Court accordingly issued notice and directed that while the Standing Committee may continue to function, it shall not give effect to any order passed by it, till the next date of hearing. A copy of the order dated 25.08.2014 is enclosed as **Annexure 43.**

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96. Subsequent to the legal challenge, the NBWL was reconstituted once again vide notification dated 11.09.2014. A copy of the notification dated 11.09.2014 is enclosed as **Annexure 44.** The NBWL has not met even once after its reconstitution in 2014.

97. Further, after the reconstitution of the NBWL, the Standing Committee was never reconstituted by it. This is in clear violation of the provisions of Section 5 B of the Wildlife Act. Once the NBWL was reconstituted, the parent statute mandates that it is the NBWL which may in its discretion constitute the Standing Committee. The NBWL must meet and then decide that it wants to constitute a Standing Committee. The Central Government does not have the power to constitute the Standing Committee.

98. The Wildlife Act and the NBWL Rules, and notifications issued by the MoEF&CC, do not permit a situation where the National Board never meets (it is required to meet at least once every year), and all of its functions are usurped by the standing committee (constituted by the Central Government), which is supposed to act under its direction, and function under its control and supervision. Thus the Standing Committee which approved the three impugned projects was itself without authority under the law. Its decisions, therefore, are *non-est, ab-initio* void and illegal. For the past six years, the Standing Committee has become a rubber stamp of the central government, approving projects placed before it. The Chairperson of the Standing Committee is the Minister for Environment & Forests. The Minister thus dons two caps: one as Chairperson, and the other, as Minister who

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approves the decisions of the Standing Committee! Further, the same person is also the Minister for Heavy Industries!

99. By abundant caution, the petitioner herein had requested the international ELAW group to provide comments on the EIA Reports submitted with the proposals of the highway and railway projects. The ELAW network is a technical group that specialises in the study of EIA reports. A copy of the ELAW report is at **Annexure 45**. The review provides a detailed analysis of the EIA reports and specifically answers two most relevant questions: (1) Does either of these construction activities directly benefit wildlife in the sanctuary? And (2) Do these documents adequately address the impacts to wildlife and biodiversity? The answer to both questions for both projects is in the negative. The conclusive paragraphs for each of the projects has been reproduced below:

Railway

- The trains do not directly benefit wildlife in the Reserve, Sanctuary, or Park, and in fact, they will inevitably cause harm, as a result of increased collision risk, increased pollution, and increased risk from specific cargo. If the trains are not switched to electric they will also cause a substantial increase in noise and air emissions. Insisting that the trains run on electric power and have bio-toilets and a solid waste management regime in place may help to lessen some of the tremendous impacts to wildlife. However, there is no way the trains could be neutral, let alone beneficial, to the wildlife found in these protected areas. On the contrary, they are intended to "[...] bring in more and more tourists and thus helps in increasing the employment, business potential and socio-economic development of Goa." The rights of the animals of the protected areas are not included in this vision.

- While the document does identify many of the potentially affected species and does highlight some of the potential impacts, it is not a comprehensive assessment of each aspect of the train's construction and operation. To fully appreciate the impacts the additional railway will have, the document should have separated out the direct loss and alteration of habitat, the direct impacts on multiple animal species, and the indirect impacts that arise as a result of increased traffic and various types of cargo traveling through the protected areas.

Highway

- No, the highway does not directly benefit wildlife in the protected areas.
- No, the Highway EIA does not adequately address the impacts to wildlife and biodiversity.
- Without any legitimate baseline species assessment or assessment of impacts from the existing road, nor modeling or field surveys to assess how impacts might change, there is no credible way that this project can be allowed to proceed.

100. The above report clearly evidences that the approvals to the impugned projects are in violation of the provisions of the Wildlife Protection Act, 1972. Moreover, the EIA reports on the basis of which these approvals have been granted are wholly insufficient.

101. Further, an interim report prepared by a team led by Professor Sir Partha Dasgupta, commissioned by the UK government's economic and finance ministry, for an independent, global review on the economics of biodiversity, also makes pertinent points with respect to the impact of fragmentation of habitats, among others, by linear projects. The relevant extract of the report is enclosed as **Annexure 46**. It states:

> "When habitats are fragmented, abrupt boundaries appear between fragmented patches. In a long running study of the Amazon rainforest, Thomas Lovejoy and his collaborators found that, when fragmented, even large fragments of forest area (100 hectares) can lose up to 50% of their species in a dozen years (Laurance et al., 2002). Clearings as narrow as 80 metres have been found to hinder the recolonization of fragments by birds, insects, and tree-dwelling animals (Laurance et al., 2002). Paleo-biologists have found fragmentation of natural habitats to be a reliable early-warning sign of biodiversity loss. Unfortunately, 70% of Earth's remaining forests today are within 1 kilometre of the forest's edge (Haddad et al., 2015). Future losses to natural habitats owing to further extensions of land for agriculture are estimated to increase by nearly 20% by 2050 (Tilman et al., 2001)." Petitioners crave leave to produce the full report in these proceedings, if required.

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102. There have been universal outrage and protests against the impugned approvals. Several expert and specialised groups have made strong representations to the Minister of Environment, voicing their opposition to these three projects for their impacts on the PA. Separate representations have been made by a group of scientists, wildlife conservationists and also members of the Travel and Tourism Association of Goa (TTAG). Copies of these representations are enclosed as **Annexure 47 colly.** These representations clearly evidence that these groups are also unanimous that these projects have not been examined thoroughly and have been cleared without due scrutiny – which will result in immense destruction to the protected area.

103. The Petitioner submits that the Goa State and National Wildlife Boards have acted in complete dereliction of their statutory duty, contrary to provisions and therefore failed to act in the interest of the wildlife they are duty bound to protect. Hence, the petitioners are constrained to approach this Hon'ble Court under Article 226 seeking relief to conserve this pristine and vital wildlife habitat from fragmentation and destruction, which will have perpetual disastrous consequences for all living beings.

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Grounds

104. The Petitioner is therefore approaching this Hon'ble Court in public interest on the following major grounds, among others:-

a. The Constitution of India casts a duty upon the Government under Article 48A to protect and improve the environment and to safeguard the forests and wildlife of the country. The Wildlife Protection Act, 1972 has been enacted and amended to further and fulfill this Constitutional mandate, and thus any breach of these constitutional directives and Parliamentary legislation cannot be permitted under any circumstances.

b. The Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park are notified protected areas under Section 18 and 35 of the Wildlife Protection Act, 1972, respectively. They provide a safe and pristine habitat for a plethora of wildlife, flora and biodiversity to thrive. Reports confirm that a number of endemic and endangered species of flora and fauna are found here. The conservation value reports of the Dy. Conservator of Forest clearly evidence the rich biodiversity of this protected area and its environmental and socio economic importance. They also elucidate the role of the protected areas in wildlife and biodiversity conservation, the reduction of forest fragmentation and degradation and the minimization of the impacts of a wide range of natural disasters in different habitats.

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c. The impugned projects have been approved in violation of Section 29 and 35(6) of the Wildlife Protection Act, 1972. As per Section 29 of the Wildlife Protection Act, 1972, with respect to wildlife sanctuaries, no destruction of the wildlife or deprivation of the wildlife habitat can be permitted, except in accordance with a permit granted by the CWW and no such permit shall be granted unless the State Government being satisfied that such destruction, exploitation or removal is necessary for the improvement or better management of the wildlife therein authorizes the issue of such permit. Similarly, Section 35(6) provides the same with regard to a National Park. The impugned proposals do not satisfy this mandate. The State Wildlife Board and Standing Committee of the NBWL are bound to adjudicate every proposal within wildlife sanctuaries and National Parks strictly in conformity with Section 29 or sub-section (6) of Section 35. Every decision must be backed by clear reasons, as to how the project or the decision to approve it ensures improvement and better management of wildlife therein. Projects, if any, can only be for the welfare of wildlife and its habitat. The criterion for assessment is not clearance of projects, but the interests and welfare of wildlife.

d. Needless to say, diverting over 170 hectares of pristine forest land and fragmenting the centre of a contiguous wildlife habitat for 3 linear infrastructure projects cannot be termed as beneficial to the protected area or the dependent wildlife by any measure. The impact reports of the Dy. Conservator of Forests for all three projects, prepared in terms of Section 29 and 35(6) of the WLPA,

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1972 accurately state the severe and drastic threat that these projects would pose to the protected area and the dependent biodiversity, wildlife and natural features. However, these revealing findings find no mention in the minutes of the Wildlife Boards in their meetings.

e. Additionally, Section 38-o (g) of the WLPA entrusts it upon the NTCA to ensure that the tiger reserves and areas linking one protected area or tiger reserve with another protected area or tiger reserve are not diverted for ecologically unsustainable uses. Proposals for any activities in such areas duly notified by NTCA, and recommended by it in accordance with these provisions, to be covered under such regulation can be permitted only in public interest, after seeking recommendations of the Standing Committee of NBWL -- which has to be based on specific advice of the NTCA. The BMWLS is not only contiguous to the Anshi-Dandeli Tiger Reserve, it has also, along with the remaining contiguous sanctuaries in Gaa, been notified as a vital tiger corridor by the NTCA. However, to the best knowledge of the petitioner, no recommendation or advice has been sought or granted by the NTCA prior to approval of any of these three projects.

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f. Despite the fact that the Wildlife Protection Act, 1972 expressly prohibits projects which are not in the interests of wildlife therein to be set up within the boundaries of the PA -- the MoEF&CC has issued Guidelines to enable linear infrastructure within protected areas. These Guidelines are *ultra vires* the provisions of the

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Wildlife Protection Act, 1972 -- more particularly, they violate S. 29 and 35(6) of the Act. They dilute these absolute provisions and seek to allow such development "in the most exceptional circumstances." The Guidelines were first issued in 2012 (Annexure 24) and once again in 2014 (Annexure 25), the latter being allegedly based on a report of the sub committee of the NBWL. The MoEF&CC's Guidelines for roads in Protected areas issued in 2014, for example, prohibit new roads, but allow for the "widening of existing roads" if the same is "unavoidable". Similarly, Guidelines have been issued to permit transmission line and railway projects within protected areas as well (Annexure 31 and 38). These ambiguous dilutions to the law become the means for approval to be given by the authorities to all manner of projects, as is found in the cases highlighted in the present petition. The Guidelines seek to grant legitimacy to projects that cannot be justified otherwise. Only those projects are permissible that have a direct beneficial impact on the management and welfare of wildlife and their habitat. No other consideration can apply. The petitioner submits that it is well settled law that circulars, memoranda and guidelines may not overreach the law. This principle has been reiterated by the Supreme Court in a most recent judgement concerned with Gujarat. These Guidelines enable development that is not beneficial to the wildlife or the management of the wildlife habitat within notified protected areas and allow for human centric development -- effectively doing away with the strong statutory

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protection afforded to notified protected areas to remain inviolate for wildlife.

g. In *Alembic Pharmaceuticals Ltd Vs Rohit Prajapati* [2020 SCC OnLine SC 347], the Hon'ble Apex Court quashed a circular allowing ex post facto grant of ECs on grounds of the circular being in derogation of the fundamental principles of environmental jurisprudence and an anathema to the EIA notification dated 27 January 1994. . The Court stated:

> "21. For an action of the Central government to be treated as a measure referable to Section 3 it must satisfy the statutory requirement of being necessary or expedient "for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environment pollution." The circular dated 14 May 2002 in fact does quite the contrary. ...The circular dated 14 May 2002 allowed defaulting industrial units who had commenced activities without an EC to cure the default by an ex post facto clearance. Being an administrative decision, it is beyond the scope of Section 3 and cannot be said to be a measure for the purpose of protecting and improving the quality of the environment. ...The circular provided for an extension of time and inexplicably introduced the notion of an ex post facto clearance. In effect, it impacted the obligation of the 20 industrial units to be in compliance with the law. The

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concept of ex post facto clearance is fundamentally at odds with the EIA notification dated 27 January 1994. ...The EIA notification of 1994 mandates a prior environmental clearance. The circular substantially amends or alters the application of the EIA notification of 1994. The mandate of not commencing a new project or expanding or modernising an existing one unless an environmental clearance has been obtained stands diluted and is rendered ineffective by the issuance of the administrative circular dated 14 May 2002. This discussion leads us to the conclusion that the administrative circular is not a measure protected by Section 3. Moreover, the administrative circular is contrary to the EIA Notification 1994 which has a statutory character. The circular is unsustainable in law."

The Supreme Court, in several other similar matters, has set aside circulars, memoranda, rules that are contrary to the parent legislation in those cases.

h. In any case, the petitioner submits that even the guidelines/circulars themselves have not been complied with for the impugned projects. The guidelines issued by the MoEF&CC dated 19.12.2012 clearly state that projects can be allowed within protected areas only in the most exceptional of circumstances. However, an examination of the manner in which these proposals have been approved demonstrate that these guidelines themselves

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have been violated. All proposals have been approved without examination of whether any such exceptional circumstances exist.

i. The guidelines regarding roads in protected areas issued by the MoEF&CC dated 22.12.2014 clearly mandate that the principles of avoidance as recommended by the NBWL must be adhered to, and no new roads can be permitted in protected areas. The petitioners submit that the proposal of the PWD discloses that a major portion of the highway is being widened by creating new roads on viaducts. As evidenced by the decision of the NHAI to give up the widening of the NH 4 A through the Anshi-Dandeli Wildlife Sanctuary, the principle of avoidance can, and must be adhered to in the BMWLS and Mollem National Park as well.

j. Further, the guidelines mandate that alternatives are to be taken into account, and demonstrated by the project proponent before the project can be considered by the NBWL. The wildlife clearance application form mandates a self-contained and factual report of at least 2 alternatives considered by the project proponent along with the technical and financial justification for opting for the national park/sanctuary area. No alternatives have been considered for the highway project.

k. It must be noted that the Guidelines allow for the consideration of projects to widen existing roads through protected areas only if it is unavoidable due to purpose or alignment. A perusal of the EIA report for the highway project and the minutes of the meetings of the Board disclose that no alternatives to such construction have

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been considered and absolutely no necessity/unavoidability for such development through the protected area has been demonstrated by the project proponent, nor demanded by the authorities. The existing road through the sanctuary is more than sufficient and well maintained. Traffic passing through a WLS must be regulated, controlled and must strictly adhere to speed limits and timings as is. Even in the current scenario, there are instances of animal deaths caused by vehicles on the highway. This will only be exacerbated if this proposal is permitted. For a similar stretch in Anshi-Dandeli tiger reserve in Karnataka, the same NHAI has simply dropped the proposal for road widening as not required.

l. The guidelines further state that in cases where the area proposed for diversion is large and/or the impact of the project on wildlife is considered to be serious, site inspections may be conducted by the members of the Committee or further studies/ surveys may be conducted by experts on the instructions of the Standing Committee of NBWL. Despite the large area and severe impact demonstrated, no further studies have been sought. The projects have been approved at the first instance.

m. These 3 impugned projects have been approved in haste with almost no scrutiny, and definitely no consideration upon the wildlife habitat, parts of which they will completely destroy. Despite the fact that all three projects would be carving up the same wildlife sanctuary in different locations and that construction

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work of these projects is likely to be carried out simultaneously, no cumulative impact assessment has been carried out thus far. The demand by members of the State Wildlife Board for a cumulative impact assessment has also been ignored.

n. Further, these projects were placed before the National Board for consideration without any action upon the objections of the members of the State Wildlife Board, and also without any reference to the same. All three projects were approved by the NBWL the very first time they were placed before the Board, via video conference.

o. There is absolutely no indication that the existence of the ESA or the notification pursuant to the HLWG report on western Ghats, let alone their requirements, were ever considered by either Board during the consideration and approval of these projects.

p. It is evident that the impugned projects have been approved without even studying the EIA reports submitted. The minutes of the meetings of the State board in 2017 and 2019 show that approvals were granted on the very same day that members of the Board were informed of the submission of an EIA report. Obviously, these reports -- each over 200 pages -- could not have been studied during the meetings. In any case, each of these EIA reports only deals with the individual impact of each project. Only a cumulative impact assessment of all three projects will disclose just how grave the situation actually is.

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q. If either Boards had actually studied the EIA reports, they would have found that for the highway project, other than making unscientific and contradictory statements, the report does not even attempt to evaluate the impact upon wildlife. The report itself states that a major section of the road from km 84 to km 96 passes through part of the Western Ghats, which has been considered as one of the richest reservoirs of biodiversity and termed as a 'Biodiversity Hotspot'. (Hot spots are areas that are extremely rich in species, have high endemism, and are under constant threat). Subsequently, it states that there are no endangered or extinct species and then goes on to state that there will be no adverse impact on the wildlife and that there are no endangered or "extinct" species in the protected area. Apart from the fact that this is wholly false (tigers admittedly roam these forests, among many other endangered species), the impact of a project through the protected area cannot be calculated merely based on the existence of endangered species. That such a report passed the scrutiny of two statutorily constituted Wildlife Boards is completely shocking.

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r. In the case of the railway line, a study of the EIA report would have revealed that numerous scientific studies within the report disclose the severe impact that this project would have upon the wildlife, biodiversity and natural features, and that no measures have been proposed to adequately deal with these threats.

s. The dis-proportionately large and highly detrimental impacts of linear infrastructure on fragmentation of forests are well

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documented. Major roads passing through forests cause irreversible physical disturbances to the forest, and act as barriers to flora and fauna, curtailing free physical movement and even genetic flow. Highways degrade habitats and aquatic systems, produce air, noise and light pollution that disorient and cause stress to animals, they break canopy connectivity for arboreal animals and, where traffic is high in volume and velocity, they become impermeable walls that splice up habitats. Roads also have other undesirable deleterious consequences to forest ecology such as weed proliferation and biotic pressure. Failure to protect wildlife corridors would amount to islanding biodiverse-rich habitats, vital to larger national interests, such as water and food security and carbon sequestration in an era of climate emergency.

t. In addition, contrary to the false averments in the EIA report for the highway, there is further direct loss of habitat during establishment and maintenance of roads and highways. This may happen due to clearing of vegetation, dumping of excavated earth and materials, movement of heavy vehicles and earth-movers, creation of labour camps, etc. The effects of these disturbances may persist in the landscape from years to decades.

u. It appears that the so called "mitigation measures" in the form of underpasses and overpasses to facilitate wildlife to cross over from one side to the other have alleviated any concerns raised by the wildlife officials. These wildlife crossing mechanisms so proposed may assist in the mitigation of merely one of the many

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undesirable consequences of this project upon the protected area ecosystem. No other measures on impacts and for consequential mitigation measures have even been contemplated by the project proponent or wildlife authorities. In any case, mitigation is not an option permissible under Sections 29 and 35 of the Wildlife Act.

v. Mitigation measures by definition imply that there will be a severe impact that requires mitigation and thus, must only be considered and taken into account if the said project is unavoidable and absolutely necessary. In extraordinary circumstances, as a last resort, these measures only act to perhaps reduce the impact of the project, not to negate them. Mitigation measures cannot act as an enabling mechanism to approve all infrastructure projects within protected areas that are required, by law, to be conserved for wildlife. Wildlife authorities are bound to act in the best interest of the forest and wildlife. By recommending this projects through the protected area, they have acted in complete dereliction of their statutory duty and contrary to it as well.

w. The National Wildlife Action Plan (2002-2016) does not permit new roads and the widening of existing roads within and in the vicinity of protected areas. In the IAs filed in *T.N. Godavarman Thirumulpadvs Union Of India &Ors*, pertaining to the case of the endangered Asiatic Wild Buffalo (IA Nos. 1433 and 1477 of 2005), the Hon'ble Supreme Court in its judgment dated 13.02.2012 recognized that the National Wildlife Action Plan 2002-2012 and centrally sponsored scheme (Integrated

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Janardhan S. Parshekar
Bardez - Goa

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Development of Wildlife Habitats) is centered on the principle of ecocentrism and explicitly stated that environmental justice could be achieved only if we drift away from the principle of anthropocentrism to ecocentrism. Ecocentric approach is life-centered, nature-centered where nature includes both human and non-humans.

x. The Goa PWD has not obtained an EC for the 4 laning of the highway under the provisions of the EIA notification, 2006. The respondents cannot seek refuge under the notification of the MoEF& CC dated 22.08.2013, doing away with the mandatory requirement of an EC for NH projects less than 100 km in view of the fact that the entire National Highway has to be considered as a whole and cannot be broken up into separate projects to circumvent the EIA Notification. The same is made clear in the order of the Hon'ble High Court of Karnataka dated 24.02.20 in WP 3350/2019 (Annexure 14). The NH 4A is 153 km in length, and as such an EC is mandatory before the proposed widening can be carried out.

y. A number of studies have also highlighted the diversion of wildlife habitats as a probable attribute for the spread of pandemics such as the COVID-19. Ironically, the Standing Committee of the National Wildlife Board considered it apt to approve a number of projects diverting protected wildlife habitats, while the country was in the midst of the pandemic.

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z. The Standing Committee of the NBWL is functioning *de hors* the statutory scheme. The NBWL constituted in September 2014 has not met even once, despite the provisions of the National Board for Wildlife Rules, 2003 mandating a meeting once a year. Nor has it set up any Standing Committee by resolution. The present Standing Committee is without jurisdiction. It is acting in clear violation of the provisions of Section 5 B of the Wildlife Act.

aa. Under the scheme of Section 5 B of the Wildlife Act, the standing committee of the NBWL is required to act under the direction of the NBWL, to perform such duties as may be delegated to the committee by the National Board. Rule 11 of the NBWL Rules 2003, states that "the National Board may constitute a Standing Committee and such other committees or study groups, as may be necessary, in accordance with the provisions contained in section 5B of the Act. Thus the Wildlife Act and the NBWL Rules, and the MoEF notification, do not permit a situation where the National Board never meets, and all of its functions are usurped by the standing committee which was set up by the Ministry of Environment before the constitution of the NBWL, and which is supposed to act under its direction. This is completely irregular and unacceptable procedure. The Board must function according to law, and not as per the fickle, arbitrary desires of the Government in question. It is precisely because there is no functioning NBWL today that wildlife management today is in a state of crisis and the wildlife has no recourse. The body set up to look after its welfare has turned itself into a body for clearing projects.

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bb. The Petitioner submits that the standing committee has usurped the functioning of the NBWL and is functioning without any legal authority. There can be no exercise of power, unless such power exists in law. If the power does not exist, the purported exercise of power would be bad and the action, illegal and void. Thus, the decisions of the standing committee of the NBWL recommending the impugned projects, vide its 56th and 57th meeting dated 17.12.2019 and 7.4.2020, respectively, are null and void.

cc. The Hon'ble Supreme Court of India, in the case of Pancham Chand v. State of H.P., (2008) 7 SCC 117 in dealing with statutory authorities under the Motor Vehicles Act, reiterated the principle that "The Act is a self-contained code. All the authorities mentioned therein are statutory authorities. They are bound by the provisions of the Act. They must act within the four corners thereof." It is submitted that this principle also applies to the Wildlife Protection Act, and the NBWL, being a statutory authority, is bound to act within the four corners of the statute. Thus, clearances cannot be given by a parallel system, wherein the standing committee usurps the role of the NBWL, under whose guidance and control it is supposed to function. The SC-NBWL has abandoned its role and duty to protect and act in the interest of wildlife- and has instead become a project clearing committee.

dd. As per the National Board for Wildlife Rules, 2003, the term of the non official members of the NBWL is only 3 years. Thus,

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the term of the non official members of the NBWL would have expired in 2017. Some of these members were also appointed to the SC-NBWL in July 2014. However, the same non official members continue to attend the meetings and take decisions as the SC-NBWL to date.

ee. The composition of the Standing Committee of the NBWL also suffers from material irregularities. The only member of the Standing Committee, which purportedly belongs to the category of Non-Governmental Organisation, is the GEER Foundation. However, the GEER Foundation is not a 'non-governmental organisation': it is a society set up by the environment and forest department of the government of Gujarat and is headed by the Chief Minister of Gujarat. The Forest Minister and Additional Chief Secretary are in its governing board and the member secretary is a serving Indian Forest Service officer. It is funded and managed by the Government of Gujarat. Thus there is no NGO representation in the Standing Committee. Further all the members in the standing committee of the NBWL, other than one member, are serving or retired government servants. The approvals issued by the present Standing Committee therefore are also vitiated on the above grounds.

ff. Such other and further grounds that may be urged at the time of hearing.

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105. The Petitioner submits that the impugned projects include heavy investment by state and central agencies. The approvals granted have several serious problems including whether such projects can be permitted within a wildlife sanctuary and national park at all, and in notified tiger corridors without the recommendation of the NTCA. The PILWP evidences several irregularities with the permissions granted by the State Government and its agencies including the Chief Wildlife Warden and the State Board. Large scale illegal deforestation has commenced in the neighboring village of Sangod. Railways have commenced action for acquisition of land under the Railways Act in south Goa. Admittedly these areas are outside the PA. The Petitioners submit that if these issues are not brought to the notice of this Hon'ble Court at the earliest, such work may commence in pursuance of the impugned permissions, within the Sanctuary as well, leading to irreversible destruction of the pristine protected area. Hence the plea for interim relief and stay till this Hon'ble Court considers the issues raised in this petition.

Janardhan S. Parshekar
Regd. No. 21[illegible]/10
Expiry Date
29/01/2025

Source of Information

106. The Petitioners are relying on information received under the provisions of the RTI Act, 2005, and documents available in the public domain on the government website “parivesh.nic.in”.

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Delay, if any, in filing the petition

107. There is no delay in filing this petition. None of the projects has commenced work either in the buffer zone or in the PA. The most recent decisions of the Standing Committee in respect of the expansion of National Highway and High Tension Line were taken at its video conference meeting held on 07.04.2020.

Representations made

108. Petitioner has filed a complaint before the Central Empowered Committee (CEC) dated 22.6.2020 protesting the decisions of the Standing Committee of the NBWL. The CEC has issued notice to all parties on the complaint on 2.7.2020. The Petitioner has also made a representation to the NTCA vide letter dated 11.07.2020, enclosed as **Annexure 40.**

Documents relied upon

109. List of documents to be relied upon is provided in the index.

Prayers:

110. Petitioner prays for the following reliefs:

a) A writ of *quo warranto* or in the nature of a *quo warranto* or any other appropriate Writ, Order or direction quashing the constitution of the Standing Committee of NBWL/Respondent No. 13, vide Notification dated 14 September, 2010 (Annexure 41)& Notification dated 22.07.2014 (Annexure 42);

Janardhan S. Parshekar

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b) For an appropriate writ, order of direction, to quash the decision of the Standing Committee of the National Wildlife Board/Respondent No. 13, to approve the proposal for the 4-laning of the NH 4 A taken at its meeting dated 07.04.2020

c) For an appropriate writ, order of direction to quash the decision of the Standing Committee of the National Wildlife Board/Respondent No. 13, to approve the Tamnar transmission line proposal taken at its meeting dated 07.04.2020

d) For an appropriate writ, order of direction to quash the decision of the Standing Committee of the National Wildlife Board/Respondent No. 13 to approve the proposals for the doubling of the railway line from Castlerock to Kulem and Kulem to Madgaon taken at its meeting dated 17.12.2019 ;

e) For an appropriate writ, order of direction to quash the decision of the Goa State Wildlife Board to recommend the proposal for the 4-laning of the NH 4 A taken at its meeting dated 02.12.2019;

f) For an appropriate writ, order of direction to quash the decision of the Goa State Wildlife Board to recommend the Tamnar transmission line proposal taken at its meeting dated 02.12.2019;

g) For an appropriate writ, order of direction to quash the decision of the Goa State Wildlife Board to recommend the proposal for the doubling of the railway line from Castlerock-Kulem-Kalay-Madgao taken at its meeting dated 16.12.2017 and 02.12.2019;

GOVT. OF GOA (INDIA)

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h) For an appropriate writ, order of direction to quash the permits for the impugned projects, if any, issued by the Chief Wildlife Warden under the provisions of Section 29 and 35 (6) of the Wildlife Protection Act, 1972;

i) For an appropriate writ, order of direction to quash and set aside the guidelines/circulars dated 19.12.2012, 22.12.2014 and 05.05.2014 issued by the MOEF&CC;

j) For costs of this petition;

k) Any other reliefs this Hon'ble Court may be pleased to grant.

Interim reliefs:

l) Pending hearing and final disposal of this petition, for an order staying the felling of trees or any other development related to the 3 proposals for the 4-laning of the NH 4 A, Tamnar transmission line and doubling of railway track in the Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park area.

Ad-Interim reliefs:

m) Ad-interim as per para 100 (l)

Caveat

101. No notice has been received of lodging a caveat by the opposite parties.

Place: Panaji-Goa.
Date:

Petitioner

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IN THE HIGH COURT OF BOMBAY AT GOA
AT PANAJI GOA

PIL WRIT PETITION NO._____ OF 2020

Goa Foundation	..... Petitioner
v/s	
Chief Wildlife Warden &ors	..... Respondents

AFFIDAVIT

I, Dr. Claude Alvares,, Secretary, Goa Foundation, Petitioner herein, do hereby solemnly affirm and declare as under:-

1. I have today filed a writ petition in public interest for the reliefs sought therein on behalf of the Goa Foundation.

2. I state that there is no personal gain, private motive or oblique reason in filing the PIL.

3. The petitioner is ready to pay costs as ordered by the Court, if it is ultimately held that the petition is frivolous or has been filed for extraneous considerations or that it lacks *bona fides*.

4. The petitioner shall disclose the source of its information, leading to the filing of the PIL, if and when called upon by the Court, to do so.

5. I solemnly declare and say that what has been stated in paras 1(p), 2(p), 3(p), 4(p), 5(p), 6(p), 7-16, 17(p), 18, 19(p), 20(p), 21-27, 28(p), 29, 30(p), 31(p), 32-37, 38(p), 39(p), 40, 41, 42(p), 43(p), 44(p), 45,

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46, 47(p), 48(p), 49(p), 50, 51, 52(p), 53(p), 54(p), 55, 56, 57(p), 58, 59, 60(p), 61, 62, 63(p), 64, 65, 66(p), 67(p), 68, 69, 70(p), 71(p), 72-74, 75(p), 76, 77(p), 78(p), 79-84, 85(p), 86, 87(p), 88(p), 89(p), 90, 91, 92(p), 93-96, 97(p), 98(p), 99, 100(p), 101, 102, 103(p), 106, 108, 109 and 111 of the accompanying petition are in the nature of facts which are true to my own knowledge I believe the same to be true and the contents of paras 1(p), 2(p), 3(p), 4(p), 5(p), 6(p), 17(p), 19(p), 20(p), 28(p), 30(p), 31(p), 38(p), 39(p), 42(p), 43(p), 44(p), 47(p), 48(p), 49(p), 52(p), 53(p), 54(p), 57(p), 60(p), 63(p), 66(p), 67(p), 70(p), 71(p), 75(p), 77(p), 78(p), 85(p), 87(p), 88(p), 89(p), 92(p), 97(p), 98(p), 100(p), 103(p), 104, 105, 107 and 110 are my submissions, made on legal advice which I believe to be true and correct. No part of it is false and nothing material has been concealed therefrom.

6. I say that the documents annexed are true copies of their originals.

Deponent

Solemnly affirmed at Mapusa
this the 14th day of July, 2020

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Janardhan S. Parshekar
Mapusa Bardez Goa
Regd. No. 218/10
Expiry Date
29/01/2025

NOTARIAL NOTARIAL NOTARIAL

SOLEMNLY AFFIRMED AND VERIFIED
BEFORE ME BY Dr Claude Alvares
WHO IS IDENTIFIED BEFORE ME BY
____
WHOM I PERSONALLY KNOW
Regn. No 1026/2020 DATED 14/7/2020

JANARDHAN S. PARSHEKAR
NOTARY AT MAPUSA BARDEZ
GOVT. OF GOA, INDIA

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Annexure 1

Certified to be true copy
of the original

JANARDHAN S. PARSHEKAR
MAPUSA, BARDEZ-GOA
Regd. No. 218
Expiry Date
23/1/2020

C E R T I F I C A T E

In view of the Affidavit filed by the Secretary of the Society ' THE GOA FOUNDATION ' for the purpose of 3 (B) (4) of the Societies Registration (Goa Amendment) Act,1998, it is hereby certified that the registration of the said Society, registered under the Societies Registration Act, 1860 under No.23/Goa/86 is hereby renewed for a further period of five years w.e.f. 11-6-2000.

Dated:- 2nd August, 2000.

(P. V. S. Sardessai)
Inspector General
By Order

Registration renewed till 11-06-2015
Dated 21/01/2011

21/1/2011

Inspector General of Societies/
/District Registrar (North Goa)
By Order

Registration renewed till 11-06-2020
Dated 24-09-2015

24/9/2015

Inspector General of Societies/
District Registrar (North Goa)
By Order

The Goa Foundation
G-8, St. Britto's Apartments,
Feira Alta, Mapusa 403507 Goa.
Phones: 2256479
www.goafoundation.org
email: goafoundation@gmail.com

12.1.2014

Truecopy

RESOLUTION OF THE GOA FOUNDATION

"It is hereby resolved that in supersession of earlier resolutions dated 30.9.2010 and 4.1.2013, all new PILs and in all matters connected therewith filed by the Goa Foundation would be signed either by Mr Mathias Vaz, President or Dr Claude Alvares, the Secretary of the Association. This resolution to apply to all matters filed henceforth in the High Court of Bombay, Panaji bench; National Green Tribunal (Pune/Delhi) and Supreme Court of India."

Certified copy:

Mathias

(Mathias Vaz)
President

Annexure 2

IN THE HIGH COURT OF JUDICATURE AT BOMBAY, GOA BENCH, AT PANAJI

PIL WRIT PETITION NO.   OF 2020

Goa Foundation)… Petitioners

Vs.

Chief Wildlife Warden & Ors)… Respondents

UNDERTAKING

I, Dr. Claude Alvares, Secretary of the Goa Foundation (Petitioner), undertake that I will disclose the source of information leading to the filing of the Public Interest Litigation if and when called upon by the Court to do so.

Petitioner

Panaji

Date: 13/07/20

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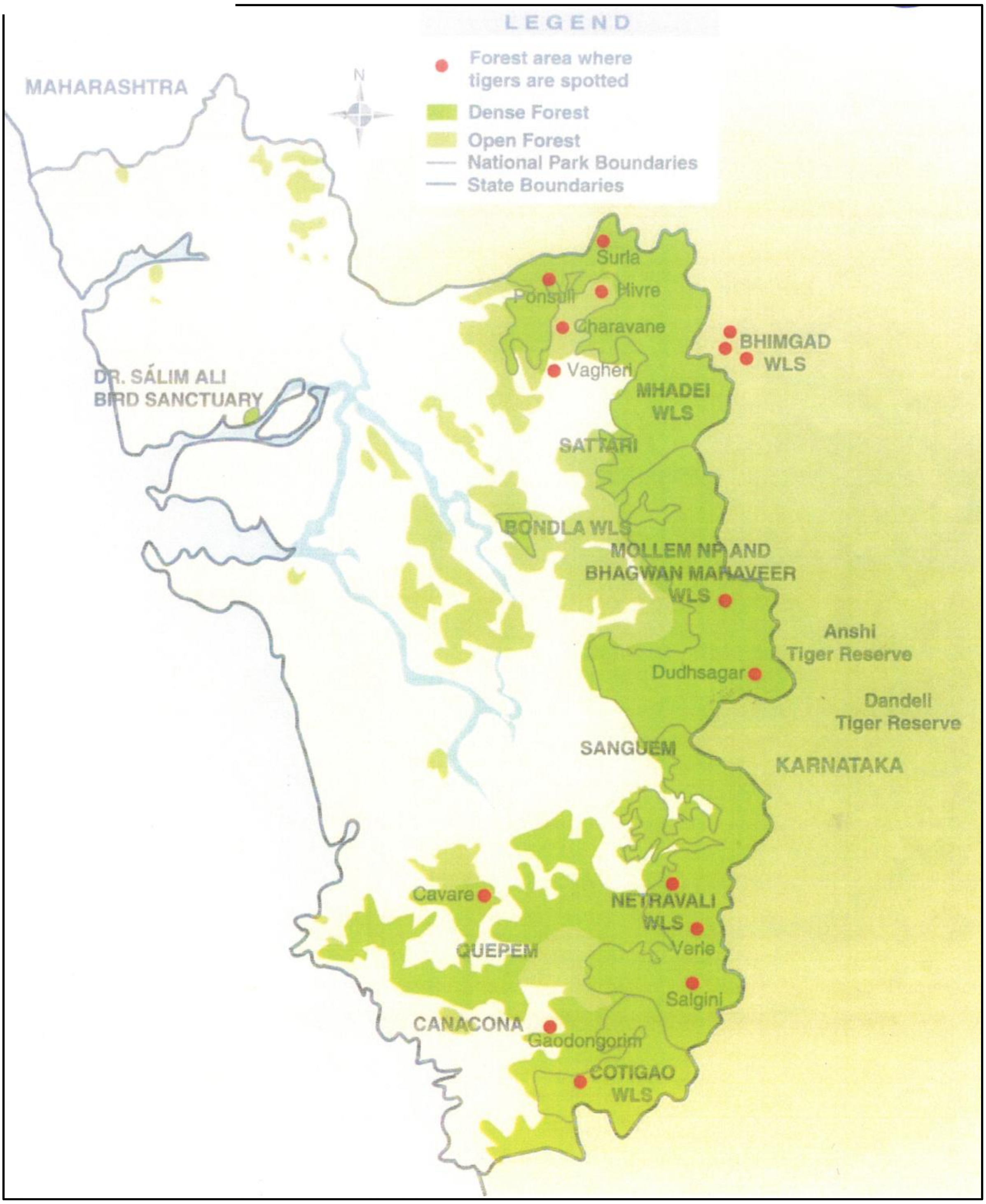
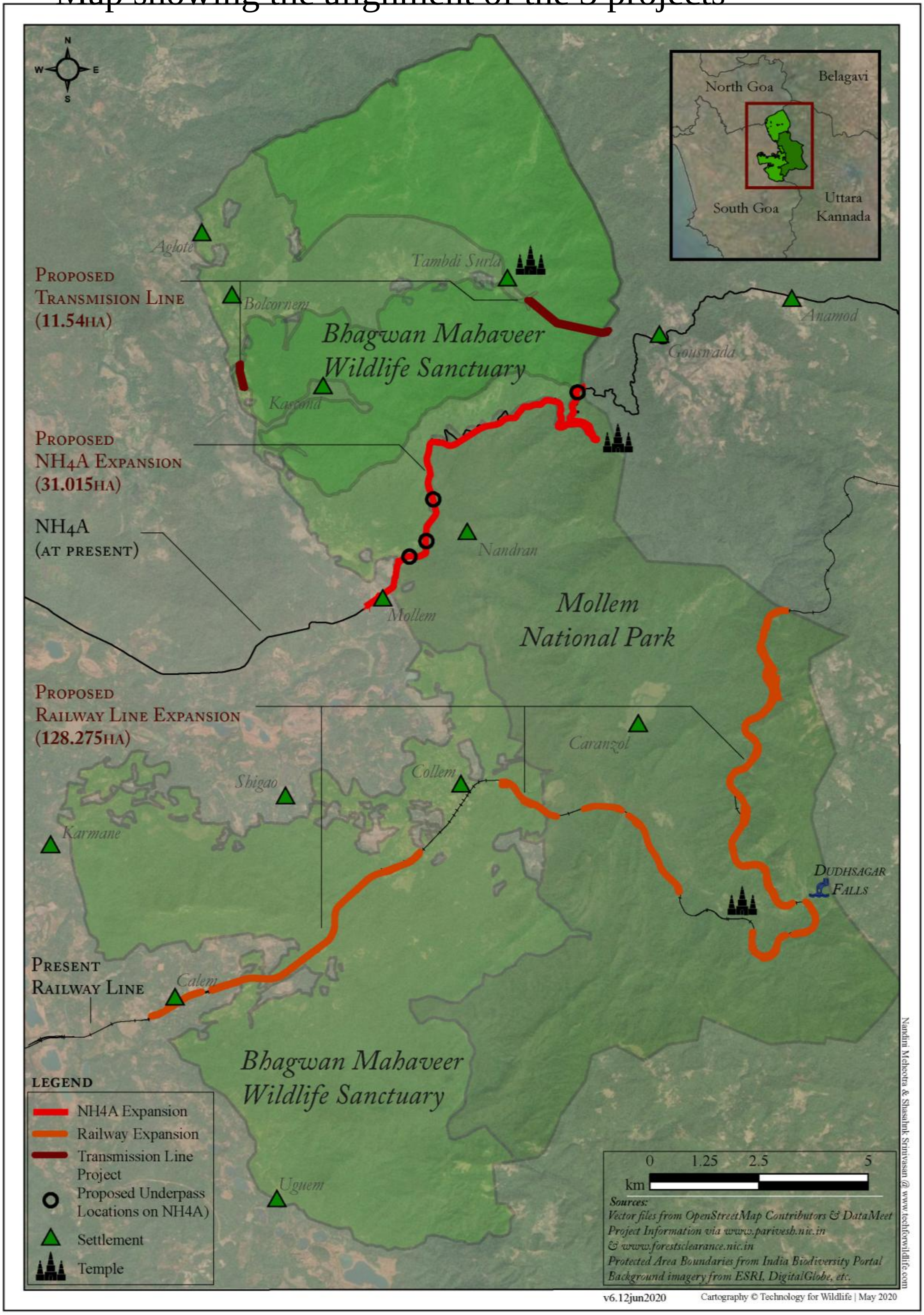
Annexure 3

Map of the contiguous wildlife habitat


LEGEND
Forest area where tigers are spotted
Dense Forest
Open Forest
National Park Boundaries
State Boundaries
N
MAHARASHTRA
Surla
Ponsuli
Hivre
Charavane
Vagheri
BHIMGAD WLS
MHADEI WLS
DR. SÁLIM ALI BIRD SANCTUARY
SATTARI
BONDLA WLS
MOLLEM NP AND BHAGWAN MAHAVEER WLS
Anshi Tiger Reserve
Dudhsagar
Dandeli Tiger Reserve
SANGUEM
KARNATAKA
Cavare
NETRAVALI WLS
Verle
QUEPEM
Salgini
CANACONA
Gaodongorim
COTIGAO WLS

Map showing the alignment of the 3 projects


N
W
E
S
North Goa
Belagavi
South Goa
Uttara Kannada
Proposed Transmision Line (11.54ha)
Proposed NH4A Expansion (31.015ha)
NH4A (at present)
Proposed Railway Line Expansion (128.275ha)
Present Railway Line
Aglote
Tambdi Surla
Bolcornem
Bhagwan Mahaveer Wildlife Sanctuary
Kasond
Gousnada
Anamod
Nandran
Mollem
Mollem National Park
Caranzol
Shigao
Collem
Karmane
Dudhsagar Falls
Calem
Bhagwan Mahaveer Wildlife Sanctuary
Uguem
LEGEND
NH4A Expansion
Railway Expansion
Transmission Line Project
Proposed Underpass Locations on NH4A)
Settlement
Temple
0
1.25
2.5
5
km

Sources:
Vector files from OpenStreetMap Contributors & DataMeet
Project Information via www.parivesh.nic.in
& www.forestsclearance.nic.in
Protected Area Boundaries from India Biodiversity Portal
Background imagery from ESRI, DigitalGlobe, etc.

Nandini Meheotra & Shasahnk Srinivasan @ www.techforwildlife.com

v6.12jun2020

Cartography © Technology for Wildlife | May 2020

CONSERVATION VALUE: The Western Ghats of India is one of the mega bio-diversity hotspot in the World. The Goa's Northern section of the Western Ghats consists of Bhagwan Mahaveer Wildlife Sanctuaries and National Park , Mollem covering an area of 240 Sq. Kms. within taluka of Dharbandora & Sanguem of our state. It was notified as Wildlife Sanctuary in 1967 and subsequently a part of it admeasuring an area of 107 Sq. Km is notified as Bhagwan Mahaveer National Park in 1978. . It is contiguous with Kali Tiger Reserve of Karnataka in east and forming an important corridor for wild animals in the region. It possesses environmental, socio-economic and recreational value. It is very vital for sustenance and survival of peoples of our state. Bhagwan Mahaveer WLS and NP afford as eyeful to nature lovers and give ample recreation to tourist and visitors. It is a home to numerous endemic species associated with the Western Ghats, but also to those not typically associated with the area like the potentially endemic Vigor's Sunbird (*Aethopyga vigorsii*). 16 out of 28 birds endemic or near-endemic to the Western Ghats occur here namely Nilgiri Wood Pigeon (*Columba elphinstonii*), Pompadour Green Pigeon (Grey-fronted) (*Trenon pompadora] affinis*), Malabar Parakeet (*Psitticula columboides*), Malabar Grey Hornbill (*Ocyceros griseus*), White-cheeked Barbet (*Megaliama viridis*), Crimson Fronted Barbet (*Megalaima malabarica*), Malabar Woodshrike (*Tephrodornis sylvicola*), Malabar Lark (*Galerida malabarica*), Grey-Headed Bulbul (*Pycnonotus priocephalus*), Flame-throated Bulbul (*Pycnonotus gularuis*), White-bellied Blue Flycatcher (*Cyornis pallipes*) , Malabar Whistling Thrush (*Myophonus horsfieldii*) , Malabar Startling (*Sturnia [malabarica] blythii*), Nilgiri Flowerpecker (*Dicaeum concolor*), Crimson-backed Sunbird (*Leptocoma minima*), Western Crimson Sunbird (*Aethopyga vigorsii*) . Also home to 13 of 14 species that are endemic or near-endemic to the Western Ghats and Sri Lanka (14 including the potential endemics or near endemics pending general acceptance of recent taxonomic study), namely Mountain Hawk Eagle (Legge's) (*Nisaetus niphalensis)* , Sri Lanka Bay Owl (*Phodilus [badius]assimilis*) , Ceylon Frogmouth (*Batrachostomus moniliger*), Indian Swiflet (*Aerodramus unicolor*), Malabar Trogon (*Harpacetes fasciatus*), Malabar Pied Hornbill (*Anthracoceros coronatus*), Scarlet Minivet (Orange) (*Pericrocotus flammeus flammeus*) , Yellow-browed Bulbul (*Iole indica*), Black Bulbul (Square-tailed)

(*Hypsipetes ganeesa*), Dark-fronted Babbler (*Rhopocichla atriceps*), Southern Hill Myna (*Gracula [religiosa] indica*) , Long-billed Sunbird (*Cinnyris lotenius*), Black-throated Munia (*Lonchura kelaarti*).

Besides serving as a host for endemic species, the Goa forests provide refuge to several migratory species, including peninsular rarities on passage. 260 species of birds have been recorded in Bhagwan Mahaveer Wildlife Sanctuary in the vicinity. In addition to this about 145 species of butterfly have been recorded and the mammals includes Slender Loris (*Loris tardigradus)* Pangolin (*Manis* crassicaudata) , Gaur (*Bos gaurus*), Indian Giant Flying Squirrel (*Petaurista philippensis*) , Malabar Giant Squirrel (*Ratufa indica),* Dhole (*Cuon alpinus)* Sambar , Spotted Deer, Sloth Bear, Barking Deer ,Leopord (*Panthera pardus*) , Tiger (*Panthera tigris*) etc seen in the Bhagwan Mahaveer Wildlife Sanctuary . This park is famous for its reptiles, in particular the King Cobra. Bronze back tree snake, Cat snake, Hump-nosed pit viper, Indian Rock python, Malabar pit Viper, rat snake, Russell's viper, Common krait, Indian Cobra and Monitor lizard are also seen here.

This PA provides place for recreation to general public and attract tourists in thousands at various tourist sites exists. There is a small exquisite 12th century Shiva temple of the Lord Mahadeva located in Bhagwan Mahaveer Wildlife Sanctuary and is an active place of Hindu worship. It is notable as the oldest temple in Goa. It is considered to be the only specimen of Kabamba –Yadava architecture in basalt stone preserved and available.

The Dudhsagar Waterfalls (ocean of milk) is one of the park's key features. It is Goa's tallest waterfall and flows downstream to join the mighty Mondovi river, Goa's lifeline. The water from Dudhsagar waterfalls over time has carved crevices downstream over solid rock called the Devil's Canyon and is known for its underwater currents. The Tambdi waterfalls about 4 kms from Tambdi Surla is equally spectacular. There are perennial rivers such as Ragada, Dudhsagar etc and rivulets originates in this Protected area and acts as a main source of drinking water of people of Goa.

This PA is rich with medicinal plants value having semi-evergreen, evergreen and moist deciduous types of forests and its canopy is almost closed and availability of grass is very limited. It has several perennial water sources.

Scanned by CamScanner

The predominant species of trees are *Terminalia, Lagerstroemia, Xyila and Dalbergia*. Large areas are covered with a thick network of thorny *Calamus* species that makes the forests unpassable while signifying the richness of succession and optimal microclimatic conditions in the National park. It is a major component of eco-tourism industry and viewing these sites along with animals like Leopard, Gaur , Sambar etc is a major attraction amongst the visitors.

There are many students and researchers studying on wildlife and their habitat , behaviour and other attributes in this PA, as there is a lot of scope to study and do research activity in this field.

Protected area helps to reduce forest fragmentation and degradation through stringent protection which helps in biodiversity conservation of the site. The effective protection of this area enhances carbon sequestration and in strengthening the resilience of ecosystems and landscapes to climate change. Also it provides safety through their genetic resources and ecosystem services.

Fragile vegetation of this PA minimises the impacts of a wide range of natural disasters in different habitat types by absorbing excessive rainfall and control stream flows by gradually releasing the water into the soil, streams and rivers of the watershed likewise play major ecological role in the natural ecosystem.

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Scanned by CamScanner

Annexure 5

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 23rd January, 2015

S.O. 221(E).—Whereas, the Bhagwan Mahaveer Wildlife Sanctuary and National Park, Goa lying between latitudes 150 29’ 30.47’’ N and 150 15’ 9.29” N and longitudes 740 20’10.01” E and 740 29’ 26.27” E in the North Goa District of Goa State and extending over an area of 240 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And whereas, out of the 240 square kilometres of original Bhagwan Mahaveer Wildlife Sanctuary, an area of 107 square kilometres was carved out and constituted as a National Park thereby dividing the Sanctuary into two parts;

And whereas, the endangered species of wildlife like Indian bison, panther, mouse deer, black panther, slender loris, wild dog, sloth bear, etc inhabits the Protected Areas;

And whereas, the forest of these Protected Areas intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Zuari river, Mandovi river and its canals;

And whereas, it is necessary to conserve and protect the area around the Bhagwan Mahaveer Wildlife Sanctuary and National Park as Eco-sensitive Zone from ecological and environmental point of view;

And whereas, a draft notification under sub-section (1) read with clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 635(E), dated the 3rd March, 2014, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014 along with the corrigendum issued *vide* notification number S.O. 831(E), dated 19th March, 2014;

And whereas, all objections and suggestions received in response the draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:—

1. **Extent and Boundaries of Eco-sensitive Zone.-**(1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by the boundary of Madei Wildlife Sanctuary, on the South by the boundary of Netravali Wildlife Sanctuary, on the East by the boundary of Bhagwan Mahaveer Wildlife Sanctuary and National Park and on the West by areas of the villages of Dharbandora Taluka, Sattari Taluka and Sanguem Taluka; the Dudhsagar river, originating from the Bhagwan Mahaveer National Park passes through the Eco-sensitive Zone towards West along the Eco-sensitive Zone boundary and Bhagwan Mahavir Sanctuary boundary.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of sixteen villages falling partially within Eco-sensitive Zone boundary is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for consideration and approval of the Ministry of Environment, Forests, and Climate Change, Government of India in consultation with local people and with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 5, for carrying out its functions of monitoring under the provisions of this notification.

3. **Measures to be taken by State Government.-**The State Governments shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of the local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

(i) Small scale industries not causing pollution,

(ii) Rainwater harvesting, and

(iii) Cottage industries including village industries,

(iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, only once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forests and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) New construction of any kind shall not be allowed within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities:

(c) Till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be indentified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981(14 of 1981).

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(9) Disposal of solid wastes shall be as under:-

(i) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908(E), dated the 25th September, 2000;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) The biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. **List of activities prohibited or to be regulated within the Eco-sensitive Zone.-**All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and be regulated in the manner specified in the Table below, namely:—

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect: Provided that the existing mines may be phased out within a period of ten years subject to the Supreme Court modifying its interim order dated 4.8.2006 in I.A. 1000 in Writ Petition 202 of 1995 (T.N. Godavarman Vs. Union of India) and its order in Writ Petition 435 of 2012 in the matter of Goa Foundation Vs Union of India: Provided further that the State Government shall ensure a proper and rigorous mine closure plan for rehabilitation and ecological restoration of the mined out area which shall be completed as early as possible as per Indian Bureau of Mines norms.
2.	Setting up of saw mills.	Prohibited with immediate effect.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited with immediate effect.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited with immediate effect.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited with immediate effect
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited with immediate effect.
9.	New wood based industry.	Establishment of new wood based industry shall be prohibited within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	No new construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited with immediate effect.
12.	Brick kilns	Prohibited with immediate effect.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be allowed only for *bona fide* agricultural use and domestic consumption of the occupier of the land (b) extraction of surface water and ground water for industrial or commercial

		use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	For commercial purpose.
19.	Introduction of exotic species.	
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	
21.	Protection of hill slopes and river banks.	
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	
26	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including sap, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per tourism master plan
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	

5. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of all notified Eco-sensitive Zones around the National Parks and Wildlife Sanctuaries in the state of Goa, hereby constitutes a Committee called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa comprising of the following members, namely:-

(i) Chief Secretary, Government of Goa- Chairman;

(ii) Representative of the Ministry of Environment, Forests and Climate Change –Member;

(iii) Member Secretary, State Pollution Control Board-Member;

(iv) One representative of Non-governmental Organizations working in the field of environment, nominated by the Government of Goa (for a term of one year)– Member;

(v) One representative of community based organization nominated by the State Government (for a term of one year)– Member;

(vi) Principal Secretaries of the Government of Goa from Departments of Forest, Environment, Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport, Revenue– Members;

(vii) One expert in Ecology from reputed Institution or University of the State of Goa nominated by the State Government (for a term of one year) - Member;

(viii) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.

(2) The function of the SESZMC shall be as under:

(a) The SESZMC shall monitor the compliance of the provisions of Notifications declaring Eco-sensitive Zones around National Park and Wildlife Sanctuaries in the State of Goa including this notification.

(b) All activities that are covered under the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and refer the same to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.

(c) The activities that are not covered under the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinized by the SESZMC based on the actual site-specific conditions and refer the same to the concerned regulatory authorities.

(d) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaint under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.

(e) The SESZMC may invite representatives or experts from concerned Departments, Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.

(f) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forests and Climate Change as per pro forma given in **Annexure IV**.

(g) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it may deem fit, to the SESZMC for effective discharge of its functions.

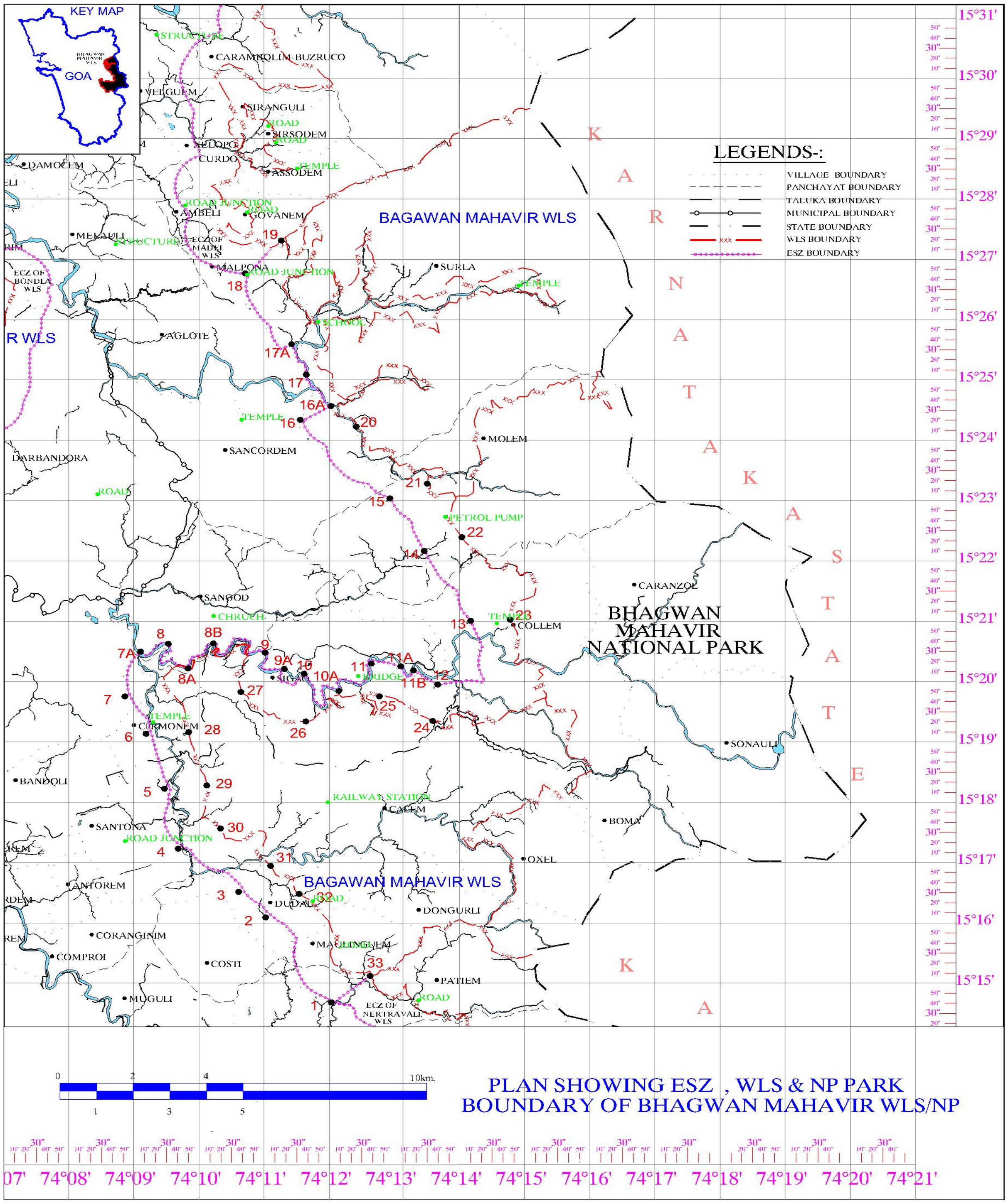
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal (NGT) as the case may be, in respect of matters covered under this notification.

[F. No. 25/34/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

Map of Bhagwan Mahaveer Wildlife Sanctuary & National Park Eco-sensitive Zone showing Latitudes-Longitudes


KEY MAP
GOA
LEGENDS-:
VILLAGE BOUNDARY
PANCHAYAT BOUNDARY
TALUKA BOUNDARY
MUNICIPAL BOUNDARY
STATE BOUNDARY
WLS BOUNDARY
ESZ BOUNDARY
BAGAWAN MAHAVIR WLS
BHAGWAN MAHAVIR NATIONAL PARK
KARNATAKA STATE
R WLS
ECZ OF BONDLA WLS
ECZ OF MADEI WLS
ECZ OF NERTRAVALI WLS
CARAMBOLIM-BUZRUCO
VELGUEM
SIRANGULI
SIRSODEM
NELOPO
CURDO
ASSODEM
DAMOCEM
AMBELI
GOVANEM
MELAULI
MALPONA
SURLA
AGLOTE
SANCORDEM
MOLEM
DARBANDORA
SANGOD
CARANZOL
COLLEM
SIGAO
CURMONEM
SONAULI
BANDOLI
SANTONA
CALEM
BOMA
OXEL
ANTOREM
DUDAL
DONGURLI
CORANGINIM
COMPROI
COSTI
MAULINGUEM
PATIEM
MUGULI
STRUCTURE
ROAD
TEMPLE
ROAD JUNCTION
SCHOOL
PETROL PUMP
CHRUCH
BRIDGE
RAILWAY STATION
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3
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5
6
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7A
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8A
8B
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9A
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11A
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74°14'
74°15'
74°16'
74°17'
74°18'
74°19'
74°20'
74°21'

PLAN SHOWING ESZ , WLS & NP PARK BOUNDARY OF BHAGWAN MAHAVIR WLS/NP

Annexure II

CO-ORDINATES OF PROMINENT POINTS			
S. No.	Description	**Latitude**	**Longitude**
1	PLANTATION	15°14'32.12"N	74°11'55.78"E
2	ROAD	15°15'58.19"N	74°10'58.55"E
3	ROAD	15°16'23.40"N	74°10'33.37"E
4	RAILWAY ROAD	15°17'5.93"N	74° 9'38.10"E
5	ROAD	15°18'5.77"N	74° 9'25.42"E
6	ROAD	15°19'0.17"N	74° 9'8.32"E
7	ROAD	15°19'37.55"N	74° 8'48.79"E
7A	RIVER	15°20'27.07"N	74° 9'5.03"E
8	RIVER	15°20'49.63"N	74° 9'40.75"E
8A	RIVER	15°20'12.15"N	74° 9'48.20"E
8B	RIVER	15°20'36.59"N	74°10'13.28"E
9	RIVER	15°20'41.92"N	74°11'7.41"E
9A	RIVER	15°20'11.85"N	74°11'19.26"E
10	RIVER	15°20'7.80"N	74°11'48.41"E
10A	RIVER	15°19'50.54"N	74°12'9.19"E
11	RIVER	15°20'10.67"N	74°12'34.26"E
11A	RIVER	15°20'12.43"N	74°13'6.80"E
11B	RIVER	15°20'12.11"N	74°13'15.51"E
12	ROAD	15°19'47.29"N	74°13'31.47"E
13	ROAD	15°20'51.63"N	74°14'1.11"E
14	ROAD	15°21'58.72"N	74°13'19.14"E
15	PADDY CORNER	15°22'52.60"N	74°12'47.45"E
16	PADDY CORNER	15°23'53.72"N	74°11'35.05"E
16A	RIVER	15°24'34.13"N	74°12'1.38"E
17	RIVER	15°25'5.24"N	74°11'36.97"E
17A	RIVER	15°25'37.06"N	74°11'27.73"E
18	MADEI-BHAWGAN ESZ	15°26'51.80"N	74°10'12.72"E
19	MADEI-BHAWGAN WLS	15°27'15.04"N	74°11'16.98"E
20	WLS BOUNDARY	15°24'7.47"N	74°12'31.77"E
21	WLS BOUNDARY	15°23'9.15"N	74°13'27.37"E
22	WLS BOUNDARY	15°22'11.43"N	74°13'59.18"E
23	WLS BOUNDARY	15°21'1.53"N	74°14'42.51"E
24	WLS BOUNDARY	15°19'21.93"N	74°13'28.54"E
25	WLS BOUNDARY	15°19'48.95"N	74°12'41.04"E
26	WLS BOUNDARY	15°19'31.54"N	74°11'58.74"E
27	WLS BOUNDARY	15°19'57.69"N	74°10'50.58"E
28	WLS BOUNDARY	15°19'8.06"N	74° 9'50.22"E
29	WLS BOUNDARY	15°18'20.49"N	74° 9'57.43"E
30	WLS BOUNDARY	15°17'29.83"N	74°10'19.74"E
31	WLS BOUNDARY	15°16'54.18"N	74°11'5.25"E
32	WLS BOUNDARY	15°16'24.77"N	74°11'35.11"E
33	BHAGWAN-NETRAVALI WLS	15°15'10.83"N	74°12'33.08"E

Annexure III

List of villages falling within the Bhagwan Mahaveer Wildlife Sanctuary and National Park Eco-sensitive Zone

List of Villages partially within the ESZ Boundary

S. No.	**Village Name**
1	Aglote
2	Sancordem
3	Mollem
4	Surla

5	Collem
6	Sigao
7	Codli
8	Cormonem
9	Santona
10	Calem
11	Dudal
12	Maulinguem
13	Uguem
14	Melauli
15	Govanem
16	Patiem

Annexure IV

Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).

   Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).

   Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).

   Details may be attached as separate Annexure.
7. Summary of complaints ledged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

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Annexure 6

Press Information Bureau
Government of India
Ministry of Environment, Forest and Climate Change
02 DEC 2019 4:11PM by PIB Delhi

Tiger corridors in Country

The National Tiger Conservation Authority in collaboration with the Wildlife Institute of India has published a document titled "**Connecting Tiger Populations for Long-term Conservation**", which has mapped out 32 major corridors across the country, management interventions for which are operationalised through a Tiger Conservation Plan, mandated under section 38V of the Wildlife (Protection) Act, 1972. The list of macro/landscape level tiger corridors are as under:

Sl. No.	Landscape	Corridor	States/ Country
1.	Shivalik Hills & Gangetic Plains	Rajaji-Corbett	Uttarakhand
		(ii) Corbett-Dudhwa	Uttarakhand, Uttar Pradesh, Nepal
		(iii) Dudhwa-Kishanpur-Katerniaghat	Uttar Pradesh, Nepal
2.	Central India & Eastern Ghats	(i) Ranthambhore-Kuno-Madhav	Madhya Pradesh, Rajasthan
		(ii) Bandhavgarh-Achanakmar	Madhya Pradesh, Chhattisgarh
		(iii) Bandhavgarh-Sanjay Dubri-Guru Ghasidas	Madhya Pradesh
		(iv) Guru Ghasidas-Palamau-Lawalong	Chhattisgarh & Jharkhand
		(v) Kanha-Achanakmar	Madhya Pradesh, Chhattisgarh
		(vi) Kanha-Pench	Madhya Pradesh, Maharashtra
		(vii) Pench-Satpura-Melghat	Madhya Pradesh, Maharashtra
		(viii) Kanha-Navegaon Nagzira-Tadoba-Indravati	Madhya Pradesh, Maharashtra, Chhattisgarh, Andhra Pradesh
		(ix) Indravati-Udanti Sitanadi-Sunabeda	Chhattisgarh, Odisha
		(x) Similipal-Satkosia	Odisha

		(xi) Nagarjunasagar-Sri Venkateshwara National Park	Andhra Pradesh
3.	Western Ghats	(i) Sahyadri-Radhanagari-Goa	Maharashtra, Goa
		(ii) Dandeli Anshi-Shravathi Valley	Karnataka
		(iii) Kudremukh-Bhadra	Karnataka
		(iv) Nagarahole-Pusphagiri-Talakavery	Karnataka
		(v) Nagarahole-Bandipur-Mudumalai-Wayanad	Karnataka, Kerala, Tamil Nadu
		(vi) Nagarahole-Mudumalai-Wayanad	Karnataka, Kerala, Tamil Nadu
		(vii) Parambikulam-Eranikulam-Indira Gandhi	Kerala, Tamil Nadu
		(viii) Kalakad Mundanthurai-Periyar	Kerala, Tamil Nadu
4.	North East	(i) Kaziranga-Itanagar WLS	Assam, Arunachal Pradesh
		(ii) Kaziranga-Karbi Anglong	Assam
		(iii) Kaziranga-Nameri	Assam
		(iv) Kaziranga-Orang	Assam
		(v) Kaziranga-Papum Pane	Assam
		(vi) Manas-Buxa	Assam, West Bengal, Bhutan
		(vii) Pakke-Nameri-Sonai Rupai-Manas	Arunachal Pradesh, Assam
		(viii) Dibru Saikhowa-D’Ering-Mehaong	Assam, Arunachal Pradesh
		(ix) Kamlang-Kane-Tale Valley	Arunachal Pradesh
		(x) Buxa-Jaldapara	West Bengal

Further, a 3 pronged strategy to manage human-tiger negative interactions has been advocated as follows:-

i. **Material and logistical support:** Funding support through the ongoing Centrally Sponsored Scheme of Project Tiger, is provided to tiger reserves for acquiring capacity in terms of infrastructure and material, to deal with tigers dispersing out of source areas. These are solicited by tiger reserves through an Annual Plan of Operation (APO) every year which stems out from an overarching Tiger Conservation Plan (TCP), mandated under Section 38 V of the Wildlife (Protection) Act, 1972. *Inter alia*, activities such as payment of exgratia and compensation, periodic awareness campaigns to sensitize, guide and advise the general populace on man-animal conflict, dissemination of information through various forms of media, procurement of immobilization equipment, drugs, training and capacity building of forest staff to deal with conflict events are generally solicited.

ii. **Restricting habitat interventions**: Based on the carrying capacity of tigers in a tiger reserve, habitat interventions are restricted through an overarching TCP. In case tiger numbers are at carrying capacity levels, it is advised that habitat interventions should be limited so that there is no excessive spill over of wildlife including tigers thereby minimizing man-animal conflict. Further, in buffer areas around tiger reserves, habitat interventions are restricted such that they are sub-optimal vis-à-vis the core/critical tiger habitat areas, judicious enough to facilitate dispersal to other rich habitat areas only.

iii. **Standard Operating Procedure (SOPs):** The National Tiger Conservation Authority has issued following three SOPs to deal with man-animal conflict which are available in public domain:

i. To deal with emergency arising due to straying of tigers in human dominated landscapes
ii. To deal with tiger depredation on livestock
iii. For active management towards rehabilitation of tigers from source areas at the landscape level.

The three SOPs *inter alia* include the issue of managing dispersing tigers, managing livestock kills so as to reduce conflict as well as relocating tigers from source areas to areas where density of tiger is low, so that conflict in rich source areas does not occur.

In technical collaboration with the Wildlife Institute of India, the National Tiger Conservation Authority has also published a document titled '**Eco-Friendly measures to mitigate impacts of Linear infrastructure on wildlife'** to safeguard these corridors from linear infrastructure development besides sensitizing user agencies which *inter alia* include Indian Railway Traffic Service Probationers, National Highways Authority of India personnel, Indian Railway Engineers, besides others.

An amount of Rs. 370 crores, Rs. 345 crores and Rs. 350 crores was allocated during the financial years 2016-17, 2017-18 and 2018-19 respectively, while an amount of Rs. 350 crores has been allocated for the current financial year under the Centrally Sponsored Scheme of Project Tiger. Details of funds released under the ongoing Centrally Sponsored Scheme of Project Tiger, during the last three years and the current year, State-wise, are at **Annexure-I.**

A REPORT ON TIGER DEATHS IN MHADEI WILDLIFE SANCTUARY, GOA

BACKGROUND

Based on the preliminary report regarding the death of tigers in Mhadei Wildlife Sanctuary received from the IGF, NTCA, Regional office, Bengaluru and APCCF & CWLW, Goa, the National Tiger Conservation Authority (NTCA) constituted a team to cause enquiry in connection with the death of tigers in the sanctuary. The team comprised of AIGF, NTCA, Regional office, Bengaluru and representative of Regional Deputy Director, Wildlife Crime Control Bureau (WCCB), Western Region, Mumbai (Reference: NTCA OM dated 8th January, 2020).

The terms of reference of the team are : 1) To inquire into the cause of tiger death in this case, 2) The response / action taken by the concerned State Forest authorities in this case, 3) Compliance of the SOP issued by NTCA with regard to tiger death and disposal of tiger / leopard carcass / body parts, and 4) To suggest further legal course of action as per provision of Wildlife (Protection) Act, 1972 and as mandated under SOP of NTCA dealing with tiger death.

FIELD VISIT

The team along with the following forest officials of Goa Forest Department visited various locations inside the Mhadei Wildlife Sanctuary from 9th to 11th January, 2020. During the field visit, extensive discussions were held with the APCCF & CWLW, Goa, other senior field officials and information related to tiger deaths was collated.

Table 1. Details of team members present during the field visit.

Team Members	Designation
1. Rajendra G Garawad	AIGF, NTCA, Regional office, Bengaluru
2. Adimallayya,	Inspector, WCCB, Western Region, Mumbai
3. Vikas Desai	DCF, Wildlife and Ecotourism (North)
4. Jabestin Arulraj	DCF, Planning
5. Sidesh Naik	RFO, Bondla Wildlife Sanctuary

BRIEF DESCRIPTION OF MHADEI WILDLIFE SANCTUARY

Mhadei Wildlife Sanctuary (MWS) is one of the important protected area of Goa with an area of 208.5 sq km. Located in the North Goa district in the Sattari taluka, the sanctuary was declared in the year 1999 and is well known for its biodiversity richness. River Mhadei (also known as Mandovi), the lifeline of Goa has part of its catchment within this sanctuary.

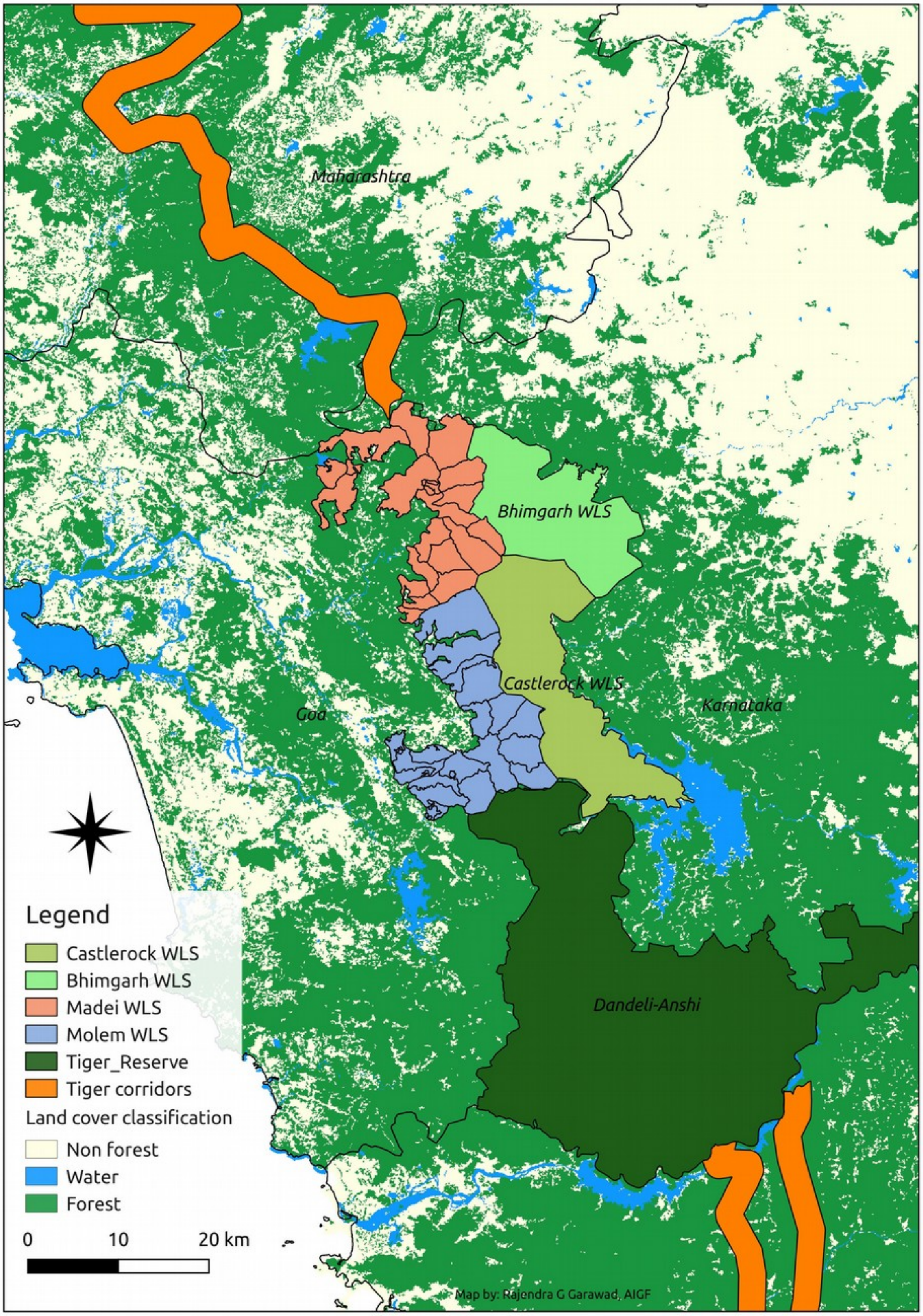
The sanctuary is connected to the larger tiger landscape of Karnataka comprising Kali Tiger Reserve, Bhimgarh Wildlife Sanctuary to the east and Bhagwan Mahavir National Park to the south (**Figure 1**). The forest types recorded in the sanctuary are West Coast Tropical Evergreen forest, Southern Moist Deciduous Forest and Subtropical Hill Forest that support diverse flora and fauna. The sanctuary also has great cultural significance since this region harbours most of the sacred groves of Goa.

Some of the mammals recorded within the sanctuary limits are tiger, leopard, sloth bear, gaur, barking deer, sambar deer, ruddy mangoose, Asian palm civet, small Indian civet, dhole, jungle gat, wild boar, Indian hare, giant squirrel, Indian pangolin and bonnet macaque. Main faunal diversity found in the sanctuary

The sanctuary is an ‘Important Bird Area’ (IBA) due to its rich avifaunal diversity and it satisfies IBA criterion of A1 (globally threatened species), A2 (restricted range species) and A3 (biome restricted species). It also forms an important part of the Western Ghats Endemic Bird Area (EBA) with seven species of the 16 endemic bird species of Western ghat EBA, recorded within the Mhadei valley.

Mhadei also has very good reptilian fauna and more than 45 snake species are known to be present in this region. Eight out of the 14 Pit Vipers found in India which includes Green Pit Viper and Humpnosed Pit Viper have been recorded here. High endemism has been observed in respect of invertebrates. India's largest butterfly, the Southern Birdwing is found in the sanctuary.

(A glimpse of Mhadei Wildlife Sanctuary. Pic courtesy: Vittal Shelke)


Maharashtra
Bhimgarh WLS
Castlerock WLS
Goa
Karnataka
Dandeli-Anshi
Legend
Castlerock WLS
Bhimgarh WLS
Madei WLS
Molem WLS
Tiger_Reserve
Tiger corridors
Land cover classification
Non forest
Water
Forest
0
10
20 km
Map by: Rajendra G Garawad, AIGF

(Figure 1 – Map showing location of Mhadei WLS in the Western Ghat landscape)

DETAILS OF TIGER MORTALITY EVENTS & INVESTIGATION DONE SO FAR

- On 20th December, 2019, a cow belonging to Vitho Pawane was killed by a tiger of Mhadei Wildlife Sanctuary (MWS). This incident of cattle depredation by tiger was reported by Vitho to the forest officials of MWS and a claim for compensation was filed.
- Subsequently, a buffalo cow of Malo Nago Pawane was killed by tiger on 30th December, 2019 in the Valpoi Territorial division (adjoining to MWS) area but the information about this incident was not conveyed to the forest officials of MWS. After learning about cattle depredation, the forest officials of the sanctuary had installed camera traps on 1st January, 2020 to observe the movement of tigers. However, no pictures of tigers were captured in the camera traps.
- On 5th January, 2020, villagers of Golauli who were visiting a cave dedicated to folk deity 'Sidhda' (situated in the interior area of MWS) for performing their annual ritual called 'Bhugut', noticed the carcass of a tiger carcass (**Tiger - 1**) inside the sanctuary. The information about a tiger carcass lying on the bank of a seasonal stream was given by these villagers to forest officials. The tiger carcass was within Golauli-Thane village area, Hivre Wildlife beat, Mhadei Wildlife Range of Mhadei Wildlife Sanctuary.
- Preliminary examination by forest officials revealed that the carcass was that of a sub adult male tiger, approximately 2-4 years old and death might have taken place 4-6 days ago. The carcass was putrefied and maggot infestation was observed was all over the body. As it was already late in the evening and dark, the postmortem was postponed to next day. Staff were deployed for overnight protection and monitoring of the tiger carcass.
- As soon as the news of tiger death inside MWS was received, by the Inspector General of Forests, NTCA, Regional office, Bengaluru, he got in touch with the APCCF & CWLW, Goa and apprised him about the provisions of Standard Operating Procedure (SOP) of NTCA for dealing with tiger death and requested for compliance of the SOP. Further, Shri Vittal Shelke of Vivekananda Environmental Awareness Brigade, Goa, was nominated as representative of NTCA for postmortem examination of tiger carcass.
- On 6th January, Shri Nandkumar Parab, ACF, was appointed as Investigating Officer (IO) by the Wildlife Warden. The postmortem of tiger carcass was done with the assistance of Dr Madhura Naik, private veterinary doctor and Dr Harsh, the local government veterinary doctor. During postmortem examination, only four claws were found and remaining 14 claws were missing from the carcass. Visceral samples like body fluids and other internal organs could not be collected due to putrefaction of the carcass. Metal detector was also used to rule out the possibility of tiger death due to gunshot. Senior forest officials, APCCF & CWLW, Goa, Shri Vikas Desai, DCF (North Goa Wildlife Division), Shri Kuldeep Sharma, DCF (Territorial division) and Shri Vittal Shelke, NTCA

representative were present during the postmortem and subsequent disposal of carcass by burning.

- Same day in the afternoon, 3 groups having around 10 staff in each group, from both territorial and wildlife division were formed for conducting combing in three different direction up to a distance of 1.5 km from the location of tiger carcass. During combing operation, fresh pugmarks of tiger was noticed approximately 500 meter to the north of incident site but no evidence regarding bullets or poisoning was obtained.
- After tiger carcass disposal, based on the information received one of the guard Shri Shablo Kopardekar, proceeded towards Dhangarwadi where a buffalo cow belonging to Vitho Pawane, resident of Dhangarwadi – Golauli village was killed by the tigress. The said staff met Vitho Pawane and requested to keep him apprised about the tiger movement in that area.
- A closer examination of the site where buffalo cow was killed by the tiger was carried out in the afternoon by another group of forest officials and noticed that there were two tiger scats and quills of porcupine.
- The combing operation inside the sanctuary by 3 groups continued on 7th January. In the afternoon, in presence of local independent witnesses, search operations were carried out in the houses of Vitho Pawane, Malo Pawane and Bomo Pawane. From the house of Vitho Pawane, a filled and another empty bottle of ‘Butox’, a chemical formulation used for treatment of ticks in cattle, was recovered.
- During search operation, Shri Nandkumar Parab, ACF & Investigating Officer (IO) received information from one of the combing team that foul smell was coming in a small perennial nalah located approximately 250 meter (aerial distance) from the house of Malo Pawane, one of the suspects **(Figure 2)**. A thorough search of the nalah area resulted in detection of a tiger carcass (**Tiger 3**) on the bank of perennial nala.
- While returning back, just by the side of nalah bed, the IO also noticed a place disturbed by digging and soil work. Upon closer examination, it was found that part of the soil in the disturbed place had turned blackish in color with flies hovering around. The IO suspected that some wild animal (most probably tiger carcass) must have been buried at that site. Owing to darkness, detailed examination of the site was postponed to the next day. Considering the latest developments, the suspects (Vitho Pawane, Malo Pawane and Bomo Pawane) were detained for further enquiry.
- Next day on 8th January, the sniffer dog squad from Police Department was used for detecting the movement of culprits responsible for tiger deaths. Smelling the footprints and strap ribbon of packing box found at tiger carcass location, the sniffer dog moved towards the houses of accused and returned to the starting point.

- At around 12 noon, another team comprising of forest staff, veterinary doctors reached the nalah where tiger carcass was detected the other day and also exhumed the buried tiger carcass (**Tiger - 2**). The postmortem was conducted by Dr Loveleen Vaz ,Bondla zoo veterinary officer and Dr Harsh. PCCF, CWLW, Goa and DCF (Wildlife) were present during the postmortem examination.
- According to doctors, the carcass was that of tiger and approximate age may be 3-4 years and all body parts were found to be intact. The veterinary doctors collected samples from lung, liver, intestine, spleen, kidney, bone marrow, skin with fur from the tiger carcass for further forensic/ toxicological analysis and the carcass was disposed by burning after postmortem examination.
- Meanwhile, continued combing activities had unearthed another tiger carcass (**Tiger - 3)** approximately 60-65 meters upstream from the location of Tiger - 2. The tiger carcass was found in a sitting posture below a tree close to the water stream. Area surrounding the carcass location was searched for presence of other evidences. The stomach portion of the carcass was completely decomposed and maggots were found. The veterinary doctors (Dr Loveleen Vaz, Bondla zoo veterinary officer and Dr Harsh) conducted postmortem examination and samples of molar teeth, canines, skin with fur and fur muscles were collected for forensic examination. Due to advance stage of putrefaction, visceral samples could not be collected for toxicological analysis. After completing postmortem examination, the carcass was disposed by burning in presence of forest officials.
- Based on the circumstantial evidence and available information, the accused Vitho Pawane, Malo Pawane and Bomo Pawane were arrested and produced before the JMFC, Valpoi Court and the accused were given two days of forest custody. Late in the evening of 8th January, the combing team came across another spot where the surface soil was disturbed and pieces of tiger fur, stone and tree barks were present on the soil surface. This spot was not very far from the location where Tiger -2 carcass was recovered earlier. The team suspected that the pit may be having the carcass of another tiger (Tiger - 4). As it was dark, the exhuming activity was postponed to the next day.
- On 9th January, one of the accused Vitho Pawane confessed before IO that he along with others had buried two tiger carcasses in the perennial nalah close to their house and agreed to show the burial places. Subsequently, another accused Malo Pawane also confessed that he had used ‘Butox’ and rat poison for poisoning the carcass of buffalo cow which was killed by the tiger on 30th December. He also agreed to show the site where buffalo carcass was poisoned by him. The statements of accused were recorded by IO in presence of independent witnesses (panchas). During statement recording, it was revealed that Jyotibha Pawane, son of Malo Pawane, also assisted the other accused in committing the crime and accordingly Jyotibha Pawane was arrested later on the same day.

- The accused Vitho Pawane and Malo Pawane were then the IO took them to the incident sites at Dhangarwada and Vitho Pawane, showed the site where they had buried the Tiger 2 and Tiger 4. The site of Tiger 2 burial was very close but downstream to the site where the carcass of Tiger 3 was recovered. The accused also demonstrated how they had used climbers & sticks for lifting the carcass of Tiger 4 for burial in a pit.
- Thereafter, the carcass of Tiger 4 was exhumed in presence of accused and the scene of crime was cordoned off for gathering other evidences present. The GPS readings of location were noted and the postmortem was conducted as per the SOP of NTCA. There were no external injuries on the carcass like gunshot wound etc and all the body parts like claws, molars, pre-molas were found intact. The visceral samples like heart, kidney, liver etc were collected for further forensic/ toxicological analysis. After the postmortem examination, the carcass was disposed by burning in presence of DCF, Wildlife and Ecotourism (North).
- After postmortem of Tiger – 4, the accused (Vitho Pawane and Malo Pawane) took the investigating team to a place where they had buried the poisoned buffalo cow. The pit was opened and as suggested by veterinary doctors, samples of poisoned buffalo carcass like skin, stomach content were collected. As per statement of accused, Malo Pawane the cow buffalo carcass was poisoned with 'Butox' and rat poison (mostly zinc phosphide formulation available in the local market).
- On 10th January, the medical examination of all the accused was done and a;; the accused were produced before JMFC. After hearing the arguments of public prosecutor, the JMFC granted the remand of all accused up to 17th January to the Forest Department. In the follow up interrogation of Bomo Pawane and Jyotibha Pawane informed the IO that one more person by name Biro Pawane, son of Vitho Pawane was also involved in commiting the crime and he was arrested late in the evening. Accused Biro Pawane was produced before the JMFC on 11th January and he was also remanded to Forest Department custody till 17th January.
- From 10th to 17th January, the accused were taken to scene of crimes and tools used in committing the crime like spade, pick axe, billhook, torch, empty bottle of ‘Butox’ chemical were recovered and seized by the IO.
- Subsequently on 17th January, the JMFC had released all the accused on conditional bail but the IO continued investigation for recovering claws missing from the carcass of Tiger – 1. Based on the suspicion, the IO had summoned suspects for further enquiry but on 20th January, the IO received information that a package containing tiger claws has been found in a temple premise in Golauli village, not very from tiger carcass locations. Presence of a plastic bag within the premise of the temple was informed by the temple priest to the forest department staff who in turn informed to IO. The sniffer dogs from Police

Department were called in but not much progress could be made in identifying the culprits. The IO has seized all the 14 claws and further investigation is on for apprehending the culprits.

OBSERVATIONS

1. The first tiger death was reported by villagers of Golauli who had gone inside the sanctuary for offering prayers for the folk deity. If not for these villagers, probably the death of first tiger (Tiger 1) would not have been known.
2. Based on the confession statements of accused, circumstantial evidence and materials seized so far it is suspected that the death of all the four tigers might have happened due to consumption of poisoned meat from buffalo carcass. Further, it is also suspected that the buffalo carcass was poisoned by the accused for taking revenge against the loss of milching buffalo cow.
3. As soon as the information about death of tigers was received, the IGF, NTCA, Regional office, Bengaluru contacted the APCCF & CWLW, Goa and briefed him about the Standard Operating Procedures (SOP) for dealing with death of tiger and disposal of tiger carcass issued by NTCA and requested for compliance of SOPs. He also briefed ADG (Project Tiger) & Member Secretary, NTCA about the tiger deaths and requested for constituting a team for stocktaking the field situation in Mhadei WLS.
4. After the recovery of first tiger carcass, the Investigating Officer (IO) was appointed by the wildlife warden and both IO and his team have done a good investigation job by arresting all the individuals allegedly involved in poisoning the buffalo carcass and also recovered tools used for committing alleged crime. The IO needs to ensure that the final offence report should be filed within specified time limt.
5. The unfortunate death of four tigers has also revealed that not all is well with the management of Mhadei Wildlife Sanctuary. According to wildlife activists who prefer to be anonymous, presence of tigers inside Mhadei WLS is a well known and documented fact which is reluctantly accepted by the Goa Forest Department. They allege that over the years, the Forest Department has not taken any serious and sincere steps for protection and conservation of tigers.
6. The team during the field visit observed that there exists no proper protection mechanism inside the sanctuary like network of well connected Anti-Poaching Camps (APC) at strategic locations manned by Forest Guard/ Watchers round the clock and year which is a very common feature of well managed PA / Tiger Reserve. As per the information

provided to the team, there are only four camps at Codal, Nagargoa, Valpoi and Caranzol (**Figure 3)** for a sanctuary spread over an area of more than 200 sq km!

7. In absence of any organized APC network and regular patrolling, it is very difficult to know what exactly is happening to the flora and fauna of this otherwise biodiversity rich sanctuary of the western ghat. It is highly possible that tigers, their prey base and other flora, fauna might be subjected to varying degrees of poaching pressure but there is no way to know unless a good protection and information network is put in place.

8. One of the nearest forest establishment to the incident site was office cum residence of round forester, Thane under Range Valpoi which is under the control of territorial division. Going by the condition of the building and dilapidated staff quarters at Thane, it appears that hardly any field staff stays in these department quarters (Plate 12).

9. The wireless communication network, a basic and an important requirement for exchanging information inside a PA was found to be lacking in the sanctuary. For example, there is wireless room at Valpoi but without any wireless equipment in it! Similarly, at the Range office at Maloli, a defunct wireless base station set sits on a table in a corner. By virtue of its location in the northeastern part of the state, there is hardly any mobile telephone connectivity inside the sanctuary and without any functional wireless network in place timely exchange of information becomes very difficult.

10. A management plan for PA is a very important document wherein the the conservation goals and objectives are formulated, assessment of threats and opportunities are carried and management strategies are prescribed for protecting the conservation values of the PA while keeping in mind the broader objective of biodiversity conservation. Unfortunately even after more than two decade of declaring Mhadei as Wildlife Sanctuary, it is managed on completely ad-hoc basis as there exists no management plan for such an important sanctuary of Western Ghat. It gives an impression that wildlife management appears to be a subject which is of least priority for the Goa Forest Department.

11. While visiting the tiger carcass locations inside the sanctuary, near Dhangarwadi the team came across a patch of forest whose undergrowth was cleared by somebody probably for establishing cashew nut plantation. When the team asked the DCF about undergrowth clearing, he had no idea about who had cleared the land and whether it was inside the sanctuary or outside. Though Working Plan division has prepared the GIS shape file of the sanctuary but it appears that no systematic and sincere efforts have been made on the ground for delineating the boundary of the sanctuary (please see plate 15).

12. According to news reports, villagers (particularly from Dhangar- Gouly community) allege that there have been several instances of cattle depredation by the tigers/ leopards in the past but hardly any compensation was given by the Forest Department officials or

action is taken. There appears to be some truth in these allegations because when the team had asked sanctuary officials to furnish the details of livestock depredation of last 3 years, the officials replied that there were no incidents of livestock depredation.

13. Representatives of local Dhangar community (to which accused belong) also allege that neither the Forest Department nor other government departments have not conducted any awareness about human-wildlife conflicts and government compensation scheme. These allegations gain credence considering the behavior of certain forest officials like Vilas Gawas, RFO, Mhadei Wildlife Sanctuary during team's field visit. Despite the fact that all the four tigers had died within jurisdiction of sanctuary area controlled by Mr Gawas, he didn't even bother to meet us let alone share any information or accompany the team during the field visit. The unusual behaviour of RFO, is also indicative of the way such officials and his subordinate field staff may be treating the local communities living inside or periphery of the sanctuary.

14. Though the State Government has put in place a mechanism to compensate people for loss suffered on account of wild animals, the local communities feel that the procedure is very cumbersome. In 2012, the Government of Goa had revised the scheme for grant of compensation on account of loss of life, permanent disability or injury and / or damage to cattle or property caused by wild animals. In case of human beings, for loss of life - Rs 2 lakh, for permanent disability - Rs 1 lakh, in case of injury – Rs 50,000. For death of cattle, a maximum of Rs 16,000 and for injury to cattle Rs 5,000 will be given based on the assessment of Damage Assessment Committee (DAC).

15. The compensation process starts with the reporting by the applicant (affected individual) to the nearest Range Forest Officer (RFO) within 3 days of occurrence of incident. The RFO will then forward the application countersigned by Assistant Conservator of Forest (ACF) to his Deputy Conservator of Forests (DCF) along with the report. Thereafter, the assessment of loss / damage to the livestock and other property will be carried out by Damage Assessment Committee (DAC) consisting of ACF, Mamlatdar of taluka, Veterinary officer (in case of cattle) and Asst. Engineer, PWD (in case of house and other property) and RFO of respective range. The DAC shall enquire, investigate and recommend the amount of compensation payable to the owner of cattle / other property damaged by wild animals. The DAC is supposed to clear the case within 60 days from receiving damage report.

    The DAC will submit the case papers to another committee comprising of DCF (Territorial divisoin), DCF (Wildlife and Ecotourism Division), Sub-Divisional Magistrate/ Deputy Collector or his representative and ACF. This committee has been given 30 days from the date of receipt of case papers from DAC. Finally the payment will be made by the office of DCF concerned. Therefore, if a villager living inside the sanctuary loses his cattle to depredation by tiger/ leopard, he may have to wait for a minimum of 90-100 days to receive the compensation. Given the procedural requirement, it is quite possible that very few people may be willing to file claims for compensation for the losses suffered by them due to wild animals.

16. With respect to monitoring initiatives taken so far, it appears that no systematic efforts have been made so far by the Forest Department for estimating the tiger population size of the sanctuary using camera trap based monitoring protocols. As part of recently concluded All India Tiger Estimation (AITE)– 2018, the Goa Forest Department had carried out sign survey activities (phase I) in the month of May, 2018 and the summary report 'Status of Tigers in India – 2018' released last year by Hon'ble Prime Minister of India, puts the tiger population size of Goa at '3' individuals. Considering the fact that only opportunistic camera trapping was done by the Forest Department inside the sanctuary without following a properly designed survey protocol, it is highly possible that the projected tiger population size of Goa may be an understatement.

17. The Protected Areas of Goa (Mhadei WLS and Mollem WLS) are part of Western Ghat landscape complex which has the unique distinction of having world's largest tiger population. This landscape has the several interconnected tiger reserves and protected areas along with Reserve Forests such as Nagarhole-Bandipur-Mudumalai- Wayanad-BRT- Sathyamangalam (**Figure 4**). The Parambikulam-Anamalai complex, Periyar-KMTR population and Bhadra-Kudremukh populations are other important populations.

18. According to Status of Tigers in India, 2014 report, Goa has a persistent tiger presence with a conservative estimate of 3-5 tigers but possess high potential to serve as home for breeding tigers. Within the Western Ghat landscape complex, Goa along with the Northern Karnataka region has the potential to increase overall tiger population numbers by providing targeted management inputs to the PA s of the region. The said report recommended that the Protected Areas of Goa along with protected forests of Karnataka should be brought under Tiger Reserve network at the earliest for facilitating tiger recovery and for conserving the rich biodiversity of this biodiversity hot-spot which will also enhance the value of Western Ghats as a World Heritage Site.

19. The Protected Areas of Goa like Mhadei Wildlife Sanctuary assume even more significance by virtue of their location within the western ghat landscape. In the NTCA-WII report “Connecting Tiger Populations for long-term conservation”, it is mentioned that Western Ghats landscape has the potential to have contiguous tiger occupancy from Dang forests in Gujarat up to the Palakkad gap in Kerala and compared to other tiger landscapes of India such as Central India and Shivalik-Gangetic Plains, tiger populations of Western Ghats are better connected with each other due to conducive habitat matrix for tiger occupancy. The narrow forest connectivity of Western Ghat ridge between Goa and

Maharashtra also plays an important role in facilitating contiguous tiger occupancy within this landscape. However, factors like plantations, agriculture, industrial and infrastructure development activities like widening of road and railway lines are threatening the existing habitat connectivity in Western Ghats.

20. The latest proof regarding connectivity of tiger populations in Western ghat is that of a tiger photocapture obtained on 11th January, 2020 in a camera trap installed at Derodem, Goa after the tiger had killed a cow of a farmer. Upon comparison of the tiger picture obtained at Derodem with that of the tiger photo-database of Tiger cell, Karnataka Forest Department, it was observed that the image was that of 6-7 year male tiger from neighbouring Kali Tiger Reserve. The said tiger was first captured in Kali Tiger Reserve in 2016. Without up-grading the legal status of Goa's Protected Areas to that of tiger reserve and putting in place a strong protection regime in place, the state may become death trap for tigers dispersing in this landscape.

21. The issue of declaring Mhadei Wildlife Sanctuary as a 'Tiger Reserve' is a long pending one with central government initiating steps way back in the year 2012 by requesting the Goa state for submission of proposal. As per the news reports, on 12th October, 2016, the Goa State Board for Wildlife had a serious discussion on the issue of bringing all the protected areas of state into tiger reserve network.

22. In a recent study conducted by Verma *et al* 2017, an attempt was made to estimate the economic valuation of tiger reserves for various ecosystem services such as employment generation, agriculture, fishing, fuelwood, fodder / grazing, timber, Non Wood Forest Produce (NWFP), gene pool protection, carbon storage, water provisioning, water purification, recreation, research & education, waste assimilation etc. For this study, the selected tiger reserves were Corbett, Kanha, Kaziranga, Periyar, Ranthambore and Sundarbans. The findings indicate that the annual flow of benefits derived from tiger reserves range from 128 million to 271 million USD. Contrary to the claims of certain vested interests that declaration of tiger reserves will stall the development of the state, this economic evaluation study by NTCA and Indian Institute of Forest Management (IIFM) clearly establishes that tiger reserves make significant contribution to the state economy by providing various ecosystem services.

23. In view of the significant gains contributed by tiger reserves, it is probably right time for the State of Goa to take forward the State Board for Wildlife decision and submit proposals for declaration of not just for Mhadei Wildlife Sanctuary but also Bhagwan Mahavir National Park, Bhagwan Mahavir Wildlife Sanctuary, Cotigao Wildlife Sanctuary and Netravali Wildlife Sanctuary as Tiger Reserves. This move will not only secure the habitat for mega carnivores and the associated floral & faunal diversity at the

state level but also contribute towards conservation of Western Ghats, a biodiversity hot-spot and a 'World Heritage Site'.

RECOMMENDATIONS

In view of the circumstances leading to the unfortunate death of tigers and the prevailing conditions inside the sanctuary, the team recommends the following actionable points for consideration.

1) **Declaration of Mhadei Wildlife Sanctyary as Tiger Reserve**: In view of the unfortunate death of tigers, the state government may take immediate steps for enhancing the legal status of 'Mhadei Wildlife Sanctuary' to that of a tiger reserve. Declaring the sanctuary as Tiger Reserve will provide much needed access to technical, financial and monitoring support from NTCA for safeguarding the conservation values of the sanctuary. It will also empower the local communities residing inside the sanctuary by giving access to development opportunities as they will be able to utilize the voluntary resettlement scheme for joining the mainstream society. Further, after conducting a scientific assessment of remaining protected areas of the state by Wildlife Institute of India, the state government may consider bringing the potential tiger habitat of Goa within tiger reserve network of Western Ghats.
2) **Setting up of Anti-poaching Camps**: While the process of tiger reserve declaration is on Anti-Poaching Camps should be set up at strategic locations inside all protected areas of Goa and and intensive patrolling regime should be put in place under the direct supervision of CWLW, Goa.
3) **Delineation of sanctuary boundary**: Steps may be taken to for delineation of sanctuary boundary using technological Settlement of right of villagers residing inside WLS.
4) **Systematic survey of sanctuary** for estimating the extent of encroachment, if any, and the change in land-cover since the declaration of sanctuary may be undertaken.
5) **Constituting State level Task Force**: The State Government may consider setting up a committee under the chairmanship of Chief Secretary for conducting detailed inquiry into the management of Protected Areas of Goa and also that of Wildlife Wing for identifying strengths, weaknesses and to suggest organizational changes for better management of protected areas of the state.
6) **Deployment of M-STrIPES**: At present there exists to mechanism to monitor the patrolling activities performed by the field staff in their respective beat/ round areas. Therefore, it is suggested that for proper documentation of patrolling activities, the Monitoring System for Tigers Intensive Patrolling and Ecological Status (M-STrIPES) developed by NTCA – WII may be deployed in all protected areas and territorial forest

divisions. The technical and financial support for M-STrIPES deployment may be provided by NTCA.

7) **Developing informer network**: The department may take steps for developing a network of informers for gathering information on illegal activities and individuals involved in such activities.
8) **Setting up of wireless network**: For enhancing the effectiveness of protection system of PA a communication network is very crucial. The department should set up wireless towers, repeater stations, base stations in all protected areas and procure sufficient number of hand held wireless handsets for use by field staff.
9) **Appointment of dedicated Forest Settlement Officer**: According to senior officials of the department, the rights of large number of villagers residing inside the sanctuary have not been settled due to lack of dedicated 'Forest Settlement Officer' (FSO). In view of this, the State Government may appointment a full time FSO so that the rights of individuals residing inside the WLS may be settled at the earliest.
10) **Capacity Building:** The department in association with Wildlife Crime Control Bureau (WCCB), NTCA, WII may organize training programs on subjects like wildlife crime investigation, intelligence gathering, monitoring tigers and prey base, anti-poaching operations at regular intervals. Workshops on forest and wildlife laws may also be organized by involving district level judicial authorities. Exposure visits of forest officials and field staff of PA to better managed PA and Tiger Reserves may also be arranged by the Forest Department. NTCA may conduct vertical training program exclusively for Goa Forest Department covering topics such as SOPs, protection, M-STrIPES and wildlife monitoring.
11) **Awareness campaigns:** The Forest Department has to initiate extensive campaigns for sensitizing the local communities and for creating awareness on various conservation issues such as importance of protecting forest & wildlife, necessity of protected areas, legal provisions related to illegal activities like hunting/ poaching.
12) **Simplifying compensation payment mechanism:** The current compensation mechanism consists of four tier system with RFO at field level reporting followed by Damage Assessment Committee, another committee for finalizing the compensation payment and finally office of DCF concerned will make payment to affected individual. In the gazette notification itself a provision for 90 days has been made for settling the claims. A poor farmer/ villager who has lost his milch cow cannot be expected to make multiple rounds to various government offices and wait for a minimum of 90 days to get compensation. The existing compensation payment system needs to be further simplified so that payment is made within a month or so. This is doable since there are many technological tools available for collection and processing of conflict related information.

13) **Preparation of Management plan:** The management plan for the sanctuary should be prepared expeditiously within a time frame of 3 months. The department may take the technical assistance from WII and NTCA for management plan preparation.
14) **Shifting headquarter of Wildlife Division**: Considering the location of Mhadei Wildlife Sanctuary and other Protected Areas of Goa, the headquarter of DCF, Wildlife & Ecotourism (North) from Panaji to Valpoi or other suitable places nearer to the sanctuary/ PA for better supervision and management.
15) **Posting young, energetic and trained forest officers for the sanctuary**: The current sad state of affairs in Mhadei WLS appears to be the result of apathy and inaction of officials at DCF and RFO level and they needs to be transferred out after inquiring into the lapses. In their place, there is an urgent need to post wildlife trained, young and energetic forest officials for improving the overall protection status of the sanctuary. A transparent transfer and posting policy for wildlife areas may also be formulated by the state government.
16) **State level monitoring of tigers:** A full fledged camera trap based study needs to be undertaken preferably by Wildlife Institute of India, Dehradun and the financial assistance for the monitoring program by NTCA.
17) **Planning voluntary village relocation**: For providing better opportunities in terms of education, employment and health care facilities to local communities residing deep inside the sanctuary, steps may be initiated for voluntary rehabilitation of families.
18) For regular supervision, better monitoring and for providing technical support to tiger bearing forests/ PA s, the state may be formally included within the jurisdiction of NTCA, Regional office (Southern zone), Bengaluru.

Submitted on behalf of the team

(Rajendra G Garawad)
Assistant Inspector General of Forests
NTCA, Regional office, Bengaluru.

Annexure 7

Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park, Goa.

Typed Copy Annexure 9(i) (Extract)

Minutes of the Meeting of the State Board for Wildlife held on 12/10/2016

Agenda 3.3 Proposals for FCA clearance in PAs.

(i) Railway track doubling work in Castlerock - Kulem Section of South Western Railways:

The Member Secretary informed the Board about the in-principle approval is accorded by the State Government to the doubling of rail track in Castlerock- Kulem section which passes through Bhagwan Mahaveer National Park. It was clarified that the earlier proposal was through a different alignment with a lesser gradient but was rejected by the State government, as it would have led to further fragmenation of the Protected Area. The revised proposal entails laying of a track running parallel to the existing one. A brief presentation was made by the project proponents, Railways indicating the alignment and the breakup of land requirements. The project requires an area of around 98 ha of forest land including the 59 ha presently under possession of the railways.

Sh. Sandeep Azrenkar, Member questioned the need for doubling of track since lot of land acquisition for the project may impact the sanctity of PA. The Chairperson stated in response that the increase in frequency of trains shall reduce the pressure on road network, a case in point being the local train being operated in Karwar- Pernem route that has received very good patronage and proposals are underway to add 4 more coaches to the existing rake. The representative of Railways also intimated that doubling of track shall enable running of more passenger trains to /from South Indian states of Tamil Nadu, Telangana and Andhra Pradesh as there is demand to this end besides faster clearance of cargo from ports and improving the local economy besides employment generation.

The Member Secretary informed the Board that Railways shall be advised to make provisions for under passes and over passes to facilitate animal crossings in identified areas besides exploring the possibility of restricting the movement of trains during wild animal crossing time during late evening and early mornings. He also suggested a study of animal behavior during crossings by deploying camera traps on 24 hour basis and proper Environment Impact Assessment studies on higher animal use areas, proper disposal of muck and environmental protection measures will be worked out. Railway representative informed that Indian Institute of Science, Bangalore is engaged for EIA study and recommendations on safety measures to reduce impact of double tracking.

Decision — The project proponents will follow up with diversion proposal as per FCA guidelines and the same will be put up for consideration of the Board alongwith outcome of the ETA and area for compensatory afforestation.

(ii) Four laning of National Highway 4A in Anmod -Mollem section:

The Member Secretary informed that the project is submitted by the Public Works Department and involves a diversion of 40 ha in Mollem, Mahaveer Wildlife Sanctuary / National Park. The representative of PWD clarified that the construction of additional lane is proposed as Viaducts to be raised in the valley side. Out of the total area involved, 15 ha involves permanent diversion while *25* ha is required to be diverted temporarily during the construction phase. The Board insisted on provisions for underpasses and - overpasses at key areas for safe movement of wild animals. The requirement of EIA studies was also insisted upon. It was opined by the members that no blasting should be permitted and alternatives explored. The Chairperson and the board desired that fabrication of carriage ways to be done at a different site to reduce disturbance during construction.

Decision — Project proponent will follow up with diversion proposal as per FCA guidelines and the same will be put up for consideration of the Board alongwith EIA report.

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Annexure 9(ii) (Extract)

Minutes of the meeting of the State Board for Wildlife held on 16/12/2017

Agenda item -4.3 Proposal for FCA clearance in PAs.

The Member Secretary informed that the South Western Railways has completed enumeration of trees within the earmarked project area and the Environment Impact Assessment Report has also been prepared for it. On query of the Chairperson, he clarified that the earlier proposal was through a different alignment with a lesser gradient but was rejected by the State Government, as it would have led to further fragmentation of the Protected Area. The revised proposal entails laying of a track parallel to the existing one and was given in principle approval in the last meeting of the SWLB.

The Chairperson enquired about data of casualties of Wild animal in train accident in past years and precautions to be taken by the Railways. Member Secretary informed that an incident of Gaur, Sloth bears kills / injury etc. has been recorded between Collem to Dudhsagar stretch. Also briefed that the EIA study by I.I.Sc. has identified few locations, where wild animal often cross over the track and further study using camera trap is under way. He suggested precautionary measures recommended in the EIA report be taken up by the Railways viz construct overpasses / underpasses in such places, prevent disturbances at the time of execution of work, proper muck disposal, labour work force may not be allowed to reside in the PA and to return back to the base camp every day after work etc. In addition, Chairperson desired that the Railway authority should give an undertaking based on recommendation in EIA report so that they will make prior provisions for creation of properly designed under or over passes where required, in case more number of additional animal crossing sites are identified through the ongoing camera trap survey. Also he suggested that the speed of train shall be regulated in PA. In order to monitor the train speed while in PA, the Railway Authority may ensure that all trains plying on this route will be enabled with GPS, so as to ascertain the location and speed of the trains when passing through the PA.

The Board recommended the proposal to be forward to the MoEFCC/ the NBWL for their consideration as per the FCA, 1980 along with above recommendation.

Agenda Item-4.3(ii): Four Laning of NH4A in Anmod-Mollem Section

Member Secretary informed that the project proposal for FCA clearance for fourt laning of NH-4A from Km 84.133 to Km 97.00 passing through Bhagwan Mahaveer Wildlife Sanctuary, National Park has been received, which requires a total of 31.015 ha of BMWLS & NP, out of which 6.75 ha is in the Sanctuary and 24.265 ha is in National Park for permanent diversion and 16.36 Ha for temporary diversion. Member Secretary clarified that construction of additional lane is proposed largely as viaducts to be raised from the valley side only, on steep rocky face side f the existing road cutting is involved. They have proposed a new design which will provide more underpasses and fewer disturbances to wild animals once the construction is completed.

Shri Sandeep Azarenkar, Member informed Mollem to Anmod stretch of 13km road having steep slope are having significant scenic beauty and expressed his concerns about losing such a pristine forest. He suggested findings alternatives for this road. Chairperson clarified that the road will be constructed on pillars/s a raised viaduct and chances of permanent damage to vegetation is minimal in such a design. Once the work gets completed, forest area will return back to normal. He further stated that in view of the present road width, it leads to intense traffic congestion on the road and combustion, creating more air pollution in the area.

Shri Sujitkumar Dongre, Member suggested to provide provisions for underpasses and overpasses at key area for safe movement of wild animal. The Chairperson clarified no such structures are required as the proposed design will provide more underpasses itself.

The Board decided to analyze EIA report of the diersion proposal as per FCA guidelines and same be put for consideration of the Board in its next meeting.

Minutes of the meeting of the State Board for Wildlife held on 02.12.2019 at 4.00pm in the Residence of Hon'ble Chief Minister at, Altinho, Panjim, Goa

Agenda: 1 - Doubling of Railway Track in Castle rock Kulem Kalay-Margao Section of South Western Railway

1.1. CWLW informed that the Goa State Board for Wildlife (GSBWL) in its meeting held on 16/12/2017 recommended the proposal of doubling of South Western Railway track between Castle-rock-Kulem-Kalay-Margao Section to National Board of Wildlife for their consideration as per FCA, 1980 along with undertaking of the Railway authority based on recommendation in Environmental Impact Assessment (EIA) report prepared by Indian Institute of Science (I.I.Sc.) Bangalore that they will make provisions with properly designed Under Passes and Over Passes for wild animal crossing wherever required along the track. These passages will be created as per specifications prescribed in the guidelines of Wildlife Institute of India, Dehradun contained in "Eco-Friendly measures to mitigate impacts of linear infrastructure on wildlife, 2016".

1.2. CWLW informed that Railways has submitted the undertaking and has made provisions for 8 underpasses (4 in each section) for crossing of wild animals in consultation with Forest Department as part of annual Animal Passage plan. The Board has informed that the proposal has already been sent to National Board of Wildlife.

1.3. Further, separate proposal for approval under the FCA has been processed by the Forest Department as per the provisions of FCA, 1980 through duly filled in Form A, Part-II, Part-III, Part-IV, and Part-V by the user agency Indian Railways and the proposal has been sent to Government of India as per laid down procedure for consideration and appropriate action.

1.4. CWLW informed that it is for the information of the Board and the State Board for Wildlife took note of it.

1.5. The Board decided that the user agency shall deposit 3% of the project cost to Forest department of Goa for utilising this money for eco-restoration, prey augmentation, reducing public dependence on forests and promoting traditional livelihoods in and around the protected area.

Agenda : 2 – Four Lanning of existing NH-4A in Goa Karnataka border from Km. 84/133 to Km 97/000 in the state of Goa in Anmod-Mollem Section.

2.1. CWLW informed that the proposal was discussed in details in last meeting of Board held on 16/12/2017 and the Board directed that Environmental Impact Assessment (EIA) report be prepared for diversion proposal submitted by National highway division, Public Works Department, Goa and directed to be put up for consideration of the board in the next meeting.

2.2. The User Agency (NHAI-PWD) has completed enumeration of trees within Project agea of four Lanning of the NH-4A over a distance of 13 Km in the Anmod-Mollem section passing through Bhagwan Mahaveer Wildlife Sanctuary and National Park, Mollem. Total No. of trees involved in felling from the Pas are 12,097 Nos.

2.3. The breakup of land under forest cover that is required to be diverted for the project is given below:

(a) Total area of forest land from Protected Area : 31.015 Ha

(Wildlife Sanctuary – 6.75 Ha & National park 24.265 Ha)

(b) Total area of forest land from Non-Protected Area: 1.887 Ha

Total Area of forest land : **32,085 Ha**

2.4. Some of the Board members expressed their concern over the need of the 4 laning of road and that it may lead to damage to wildlife sanctuary and animal habitat. The representatives of PWD informed that this road is facing huge traffic load which is increasing day by day and accidents are taking place frequently. A presentation was made by the User Agency. They informed that heavy traffic on the road is leading to more noise and dust pollution. The present road condition has greater impact on wildlife leading to accidents both of human and wild animals, which need to be addressed.

2.5. PWD representatives explained that at present due to huge traffic wild animals are finding it difficult to cross the road and provisions of three under passes and one over pass has been made as part of mitigation measure in the form of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) prepared by the Aaree

Associates, Architect Engineers and Consultation Pvt Ltd, Hyderabad. This is also in conformity with the guidelines issued by Wildlife Institute of India, Dehradun for linear road project. This provision will facilitate movement of wild animal from one side of the road to another side at present is missing. In chapter on 'Conclusion & Recommendation' of the report, it has been highlighted various mitigating measures to be adopted by project proponent in respect to Environmental issues and under Chapter. 'Provisions for Wildlife crossings' recommended to create passage for safe movement of wild animals i.e. Road Under Passes and Over Passes at identified points to reduce collision risk.

2.6. On the objections by some members about need for diversion of 33 Ha of forest (Wildlife Sanctuary) land, PWD representative informed that the proposal entails laying of a viaduct that will run parallel to the existing 2-lane road for most of stretches from the valley side only and on a steep rocky face side of existing road, cutting is involved. The provisions for Animal Passage Plan as per requirement involving 3 underpasses and one over pass has been made in the new designs. User Agency informed by user agency that out of about 31.015 Ha only 11.10 Ha is required for permanent diversion and balance 19.915 Ha is required for temporary diversion for making 18m temporary road for the movement of materials and machinery at the foot of the hill. This 19.915 Ha area shall be returned to Forest department after completion of the project since the new alignment is 3 km shorter i.e. only 10 km.

2.7. CWLW informed that the proposals with duly filled Form A, Part II & III by the User Agency and Forest Department has been received for consideration of SBWL for forwarding it to NBWL.

2.8. After thorough discussions, State Board for Wildlife recommended to send it to National Board for Wildlife for its consideration with direction to user agency to minimise the damage to wildlife habitat and minimum felling of trees. It was also decided that the user agency shall deposit 3% of the project cost to Forest Department of Goa for utilising this money for eco-restoration, prey augmentation, reducing public dependence on forests and promoting traditional livelihoods in and around the protected area.

Agenda :3 Laying LILO (Line in Line out) of one CKT of Narendra (Existing) -Narendra (New) 400 KV D/C Quad transmission line at Xeldem.

3. 1 CWLW informed that the Goa Tamnar transmission Project Ltd., Panaji has submitted a project proposal for laying of LILO (Line in Line Out) of one CKT of Narendra (Existing)— Narendra (New) 400 KV D/C Quad transmission line.

3.2 M/s. GOA TAMNAR TRANSMISSION PROJECTS LIMITED is an SPV formed under Electricity Act 2003 to participation in Development Transmission System under TBCB route. The Company is executing the transmission project Establish Transmission System for "Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at (Tamnar) Pool". The peak demand met by Goa during the year 2014- 15 was MW and as per the 18th EPS, the peak demand of 815 MW was expected by end of 12th Plan (2016-17) and 1192 MW by the end of 2021-22. At present demand of Goa is mainly catered through Mapusa 3 X 315 MVA, 400/220 KV substation, which gets feed from Kolhapur 400 kV substation through a 400 kV D/c line. Goa system is also connected with Maharashtra and Karnataka through 220 kV lines. In supply the projected power requirement of Goa with reliability, an additional 400 kV in feed to Goa was required. The matter was discussed in the 38th meeting of Standing Committee on Power System Planning in Western Region held on 17-07-2015 at New Delhi wherein the provision for a new 400kV S/s in Goa at Xeldem along with its interconnections with the Inter State Transmission System was agreed. Accordingly, following transmission system was discussed and approved in the 39th & 40th SCM of WR held on 30.11.2015 & 01.06.2016 respectively and 39th & 40th SCM of SR held on 28-29.12.2015 and 19.11.2016 respectively. The transmission line covers over a linear distance of approx 2.51 kms. and 46 m width of forest land of Bhagwan Mahaveer Wildlife Sanctuary, Mollem.

3.3 The extent of area involved for diversion of forest for non- forestry purpose of Sanctuary area is 11.546 Ha.
Total Forest Area : 48.30 Ha
Total area in PA 11 .54 Ha
Forest Area in Non-PA : 36.76 Ha
Total felling involved in PA : *4139+985* cane clums

3.4 Route starts from substation at Sangod, passing from Tambdi Surla till Karnataka Border and encounters Forest area of 7.99 Km (Reserve Forest area) and 2.51 Km of Bhagwan Mahaveer WLS, Mollern.

3.5 CWLW informed that the User agency_has completed enumeration of trees falling within the project areas and total numbers of trees enumerated are 4139 trees and 985 cane clumps, the Biodiversity Impact Assessment (BIA) studies and Biodiversity Management Plan(BMP)as prepared by ERM India Private Ltd. Gurgaon has been submitted.

3.6 Some members objected to the proposal and wanted to know that why the present route was selected when it involves loss to Wildlife sanctuary and felling of about 4139 trees. The representatives of User Agency informed that 3 routes were identified initially for the said project but this route was selected in consultation with forest department as it involves minimum wildlife sanctuary area with least damage to wildlife habitat. It was also informed that though as per requirement they have enumerated all tress lying below 400 KVa line but actual number of trees required to be felled will be less. In most cases, lopping and branch cutting of trees will serve the purpose. Further, compensatory afforestation shall be done in double degraded forest land to compensate the loss of vegetation due to diversion of forest.

3.7 After thorough discussions, SBWL agreed to the proposal in view of its importance for meeting and strengthening power supply to the State and recommended for sending it to National Board for Wildlife for consideration and appropriate act ion. The Board directed the user agency to minimize and restrict cutting of trees below 1000 trees which was agreed by the project proponent.

3.8 It was also decided that the user agency shall deposit 3% of the project cost to Forest department of Goa for utilizing this money for eco-restoration, prey augmentation, reducing public dependence on forests and promoting traditional livelihoods in and around the protected area.

MINUTES OF 56th MEETING OF THE STANDING COMMITTEE OF NATIONAL BOARD FOR WILD LIFE HELD ON 17th DECEMBER 2019

The 56th Meeting of the Standing Committee of National Board for Wild Life was held on 17th December 2019 through Video Conference and chaired by the Hon'ble Union Minister for Environment, Forest & Climate Change. List of participants is placed at ANNEXURE-I.

Hon'ble Chairman welcomed all the participants to the 56th Meeting of the Standing Committee of National Board for Wild Life and asked the IGF(WL) to initiate the discussions on the Agenda Items.

AGENDA ITEM No.1

55.1.1 Confirmation of the minutes of the 55th Meeting of the Standing Committee of National Board for Wild Life held on 29th August 2019

The IGF(WL) mentioned that the minutes of the 55th Meeting of the Standing Committee of National Board for Wild Life held on 29th August 2019 were circulated amongst all the members of the Standing Committee on 17th September 2019. He solicited for confirmation of the minutes during the meeting.

After discussions, the Standing Committee decided to confirm the minutes.

AGENDA ITEM No.2

(Action Taken Report)

54.4.3 Proposal for use of 98.59 ha of reserve forestland from Saleki proposed reserve forest which is a part of Dehing Patkai Elephant Reserve for Tikok OCP coal mining project by North-Eastern Coal Field, Coal India Limited, Assam State

The IGF(WL) briefed the Standing Committee and stated that the proposal was considered in the 54th meeting held on 18th July 2019 wherein it was decided that a committee comprising of Prof R Sukumar, Member NBWL, representative from the Wildlife Division and the State Chief Wildlife Warden would visit the project site and submit report to this Ministry within one month. Further the Ministry may also arrange for meeting with officials of Coal India Limited as advised by the chair. He stated that the Site Inspection Committee visited project site and submitted report on 22/10/2019.

Prof. R. Sukumar, Member stated that 57.20 ha of forestland has already been broken up by the user agency and the balance area of 41.39 ha unbroken land, cautious approach need to be adopted in the light of the rich biodiversity. The proposed area is on a steep hill slope that is part of the Dehing Patkai Elephant reserve adjoining good forest area in the neighboring State of Arunachal Pradesh which includes Deomali Elephant Reserve with a sizeable population of elephants. He also stated that it would be prudent to preserve the basic integrity of this forested hill slope.

the 42nd meeting of the Standing Committee, the State Chief Wildlife Warden informed that ESZ proposal of Darrah Wildlife Sanctuary would be finalized and be submitted to the Ministry in one month. In the 43rd meeting of the Standing Committee held on 27th July 2017, the State Chief Wildlife Warden sought two months time to submit the revised ESZ proposal. The period of two months ended on 28th August 2017 but no response was received from the Chief Wildlife Warden. As the ESZ proposal was not received from the State Government, the Standing Committee of NBWL in its 48th meeting held on 27th March 2018 decided to delist the proposal. However recently the State Government has submitted ESZ and is under scrutiny in the Wildlife Division. The IGF(WL) stated that the Chief Wildlife Warden and the NTCA have recommended the proposal with the conditions and mitigative measures. Further the IGF(WL) stated that the State Board for Wild Life has also recommended the proposal in its meeting held on 08/01/2015.

In the 55th meeting The State Chief Wildlife Warden stated that the mine area is 916.6 ha of revenue land in three mining blocks namely Block-1, Block-3 and Block-4 situated and the joint survey of the proposed area should be carried out by team comprising of Field Director, Mukundra Hills Tiger Reserve, representative of NTCA-Tiger Cell and the representative of user agency clearly delineating the area outside the proposed ESZ and the survey report should be submitted to the Ministry for further consideration of the proposal. He requested that Standing Committee to defer the proposal till the receipt of the survey report.

The IGF(WL) stated that the Joint Survey Report received on 11/12/2019. He stated that the private land of 311.1 ha (Block III, IV) out of total 916.6 ha falls within default ESZ of the Mukundra Hills Tiger Reserve. Further he stated that the ESZ proposal was received from the State Govt. The State Govt. was requested vide letter dated 15/11/2019 for the reasons for proposing 0.0 km ESZ around the Mukundra Hills Tiger Reserve. He stated that the response is yet be received from the State Govt.

The State Chief Wildlife Warden stated that resurvey as proposed by the Standing Committee has been completed jointly NTCA, State Forest Department and user agency. Out of total 916.6 ha, land of 311.1 ha falls in tow Blocks (III, IV) within default ESZ and 615.5 ha falls outside of 10 KM default ESZ of the Mukundra Hills Tiger Reserve. He further stated that 2% of total project cost (53.9 crores) be charged instead of Rs.30 lakhs indicated in the recommendations of the State Board for Wild Life.

After discussions, the Standing Committee agreed to recommend subject to revisit and justify the ESZ around Mukundra Hills Tiger Reserve.

AGENDA ITEM NO.3

(Fresh Proposals falling within and outside the Protected Area)

56.3.1 Proposal for wildlife clearance for doubling of existing railway line from Castlerock to Kulem, Goa State

The IGF(WL) briefed the Standing Committee and stated that the proposal is for use of 120.875 ha of land (PA area : 113.857 ha + Non-PA area : 7.108 ha) from the Bhagwan Mahaveer Wildlife Sanctuary for doubling of existing railway line from Castlerock to Kulem. He stated that the State Chief Wildlife Warden has recommended the proposal with the condition that the railway authorities may explore the option of putting some gate in tunnel which can be opened through some mechanical / electronically controlled switches before train arrival so as to ensure the wild animals are not trapped in some of long tunnels when no train is there in tunnel.

Further the IGF(WL) stated that the State Board for Wild Life has recommended the proposal in its meeting held on 16/12/2017.

After discussions, the Standing Committee decided to recommend the proposal subject to the conditions that

(a) The project proponent will comply with all the conditions imposed by the State Chief Wildlife Warden. The approved Animal Passage Plan should be implemented by the project proponent.
(a) The annual compliance certificate on the stipulated conditions should be submitted by the project proponent to the State Chief Wildlife Warden and an annual compliance certificate shall be submitted by the State Chief Wildlife Warden to Govt. of India.

56.3.2 Proposal for wildlife clearance for doubling of existing railway line from Kulem to Madgoan, Goa State

The IGF(WL) briefed the Standing Committee and stated that the proposal is for use of 16.514 ha of land (PA area : 14.4185 ha + Non-PA area : 2.095 ha) from the Bhagwan Mahaveer Wildlife Sanctuary for doubling of existing railway line from Kulem to Madgoan. He stated that the State Chief Wildlife Warden has recommended the proposal with the condition that the railway authorities may explore the option of putting some gate in tunnel which can be opened through some mechanical / electronically controlled switches before train arrival so as to ensure the wild animals are not trapped in some of long tunnels when no train is there in tunnel.

Further the IGF(WL) stated that the State Board for Wild Life has recommended the proposal in its meeting held on 16/12/2017.

After discussions, the Standing Committee decided to recommend the proposal subject to the conditions that

(a) The project proponent will comply with all the conditions imposed by the State Chief Wildlife Warden. The approved Animal Passage Plan should be implemented by the project proponent.
(b) The annual compliance certificate on the stipulated conditions should be submitted by the project proponent to the State Chief Wildlife Warden and an annual compliance certificate shall be submitted by the State Chief Wildlife Warden to Govt. of India.

ANNEXURE I

LIST OF PARTICIPANTS

1	Shri Prakash Javadekar, Hon'ble Minister for Environment, Forest & Climate Change	Chairman
2	Shri Siddhanta Das, DGF&SS, MoEF&CC	Member
3	Dr Anup Kr Nayak, ADGF(WL) & ADGF(NTCA)	Member Secretary
4	Prof R Sukumar, Member, NBWL	Member
5	Shri R D Kamboj, Member, NBWL	Member
6	Dr Y V Jhala, Rep. from WII, Member, NBWL	Member
7	Smt R Sobha, CWLW, Telangana	Invitee
8	Shri Rakesh Kumar, CWLW, Bihar	Invitee
9	Dr U Prakasham, CWLW, Madhya Pradesh	Invitee
10	Shri A Tomar, CWLW, Rajasthan	Invitee
11	Shri Priyesh Kr Verma, CWLW, Jharkhand	Invitee
12	Dr Dinesh Kr Sharma, CWLW, Gujarat	Invitee
13	Shri M K Yadava, CWLW, Assam	Invitee
14	Shri Rajiv Bhartari, CWLW, Uttarakhand	Invitee
15	Shri Soumitra Dasgupta, IGF(WL), MoEF&CC	Invitee
16	Shri Noyal Thomas, IGF(FP&PE), MoEF&CC	Invitee
17	Shri Amit Mallick, IGF (NTCA)	Invitee
18	Shri Nishant Verma, DIGF(NTCA)	Invitee
19	Shri Rakesh Kr Jagenia, DIGF(WL)	Invitee
20	Shri P Ravi, Scientist, MoEF&CC	Invitee

MINUTES OF 57th MEETING OF THE STANDING COMMITTEE OF NATIONAL BOARD FOR WILD LIFE HELD ON 07th APRIL, 2020

The 57th Meeting of the Standing Committee of National Board for Wild Life was held on 07th April 2020 through Video Conference and chaired by the Hon'ble Union Minister for Environment, Forest & Climate Change. List of participants is placed at ANNEXURE-I.

Hon'ble Chairman welcomed all the participants to the 57th Meeting of the Standing Committee of National Board for Wild Life and asked IGF(WL) to initiate the discussions on Agenda Items.

AGENDA ITEM No.1

56.1.1 Confirmation of the minutes of the 56th Meeting of the Standing Committee of National Board for Wild Life held on 17th December 2019

The IGF(WL) mentioned that the minutes of the 56th Meeting of the Standing Committee of National Board for Wild Life held on 17th December 2019 were circulated amongst all members of the Standing Committee on 21st January 2020.

He stated that the comments / suggestions have been received from Prof. R. Sukumar, Member through E-Mail dated 08th February 2020 on **Agenda Item No. 56.4.1 Proposal for strengthening and black topping of old existing road from Chillarkhal to Laldhang** passing through buffer zone of Rajaji National Park, Uttarakhand State.

After discussions, the Standing Committee decided to confirm the recommendations of the previous meeting.

55.4.17 Proposal of M/s. Associated Stone Industries (Kota) limited for expansion and renewal of Kota Stone production in mining lease No.1/89 situated in Tehsil Ramganj mandi, District Kota, Rajasthan

The IGF(WL) briefed the Standing Committee and stated that the proposal was considered by the Standing Committee of NBWL in its 37th , 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th and 48th meetings. He further stated that the proposal was recommended by the Standing Committee in its 56th meeting subject to revisit and justification of the proposed ESZ around Mukundra Hills Tiger Reserve. Now, the draft notification for the ESZ for Mukundra Hills Tiger Reserve has already been notified on 10.01.2020.

After discussions, the Standing Committee opined that the recommendation made in its 56th meeting may be deemed to be the final recommendation.

(5) Exact dimensions, design and placement of the underpasses should be finalized after a joint survey done by the user agency and Forest Department of Arunachal Pradesh in consultation with the NTCA and Tiger Cell officials.
(6) Once the realignment are in place, the existing alignments at 32 miles, 61 miles, etc., should be entirely decommissioned and allowed to be taken over by the forest. No existing drainage should be blocked due to construction of the road.
(7) The proposed road should be used mainly for National Defiance, patrolling by forest department staff and by the local tribal communities inhabiting within the tiger reserve. Therefore, no commercial activities / establishments should be permitted along the road side and active vigil should be maintained to prevent such activity in the future. Ply o traffic at night should be permitted in order to avoid disturbance and wildlife mortality.
(8) No construction materials should be collected from forests and the debris should be dumped outside the tiger reserve. No construction work should be permitted at night.
(9) The Chief Wildlife Warden, Government of Arunachal Pradesh should constitute a monitoring committee comprising of the members from Nampdapa Tiger reserve, NTCA Regional Office and WII Tiger Cell to oversee that the project and its implementation is in strict adherence to the suggested mitigation measures as above.

Dr. Sukumar and the PCCF & HoFF, Arunachal Pradesh gave certain observations regarding the new alignment. They stated that the suggested new alignment passes through the valley/riverine habitat and there are chances of the road with new alignment getting flooded during the monsoon making it unusable.

After discussions, the Standing Committee decided that the NTCA shall revisit the previous alignment and also suggest their point of view on the proposed new alignment and submit its report within 30 days from the date of issue of the minutes.

57.3.2 Proposal for use of 85.50 ha land (forestland: 48.3 ha + PA land: 11.54 ha + Non-PA land: 36.76 ha) for laying of LILO of one CKT of Narendra (existing) – Narendra (new) 400 kV D/C quad transmission line at Xeldem, Goa State

The IGF(WL) briefed the Standing Committee and stated that the proposal is for use of 85.50 ha land (forestland: 48.3 ha + PA land: 11.54 ha + Non-PA land : 36.76 ha) for laying of LILO of one CKT of Narendra – Narendra 400 kV D/C quad transmission line of 2.51 km and 46 m width of forestland of sanctuary. He stated that the State Chief Wildlife Warden has recommended the proposal with the condition that the user agency may install towers in such a way that minimum trees are required to be felled and the construction / installation work should not have adverse impact on wildlife habitat.

Further the IGF(WL) stated that the State Board for Wild Life has recommended the proposal in its meeting held on 02/12/2019.

After discussions, the Standing Committee decided to recommend the proposal subject to the conditions that

(a) The project proponent will comply with all the conditions imposed by the State Chief Wildlife Warden.

(b) The annual compliance certificate on the stipulated conditions should be submitted by the project proponent to the State Chief Wildlife Warden and an annual compliance certificate shall be submitted by the State Chief Wildlife Warden to Govt. of India.

57.3.3 Proposal for use of 32.085 ha land (PA land : 31.015 ha + Non-PA land : 1.887 ha) for 4-lanning of existing NH-4A in Anmod – Mollem Section from km 84/133 to km 97/000 in the Goa – Karnataka border, Goa State

The IGF(WL) briefed the Standing Committee and stated that the proposal is for use of 32.085 ha land (PA land: 31.015 ha + Non-PA land: 1.887 ha) for 4-lanning of existing NH-4A in Anmod – Mollem Section from km 84/133 to km 97/000 passing through the sanctuary. He also stated that the State Chief Wildlife Warden has recommended the proposal with the following conditions:

(1) As the terrain is undulating with heavy rainfall and gradient above 30 cm, the construction of road along the road is highly vulnerable to soil erosion as such all precautions measures are to be taken to control soil erosion and washout of soil in the forest streams. The precautions are to be taken in respect to soil erosion by construction of rubble wall bandaras across the contour lines so that soil should not wash away and soil erosion is controlled. The site is inspected and all possible under passes are recommended with dimensions as per the size of animals. These under passes will reduce the death of wildlife by accidents. The user agency should in particular look often this factors while execution of the project.

(2) User agency will also undertake works of putting proper signage to control speed limit to allow wild animals on priority not to light fire in wildlife sanctuary area not to litter in wildlife sanctuary area, not to park vehicles unnecessarily. Similarly put a proper big board at entry point on both sides to cautions vehicles that they are entering wildlife sanctuary. The structure like fire watch towers, view points for public, toilets, and portable drinking water facilities should be provided.

Further the IGF(WL) stated that the State Board for Wild Life has recommended the proposal in its meeting held on 02/12/2019.

After discussions, the Standing Committee decided to recommend the proposal subject to the conditions that

(a) The project proponent will comply with all the conditions imposed by the State Chief Wildlife Warden. The Animal Passage Plan should be implemented by the user agency.

(b) The annual compliance certificate on the stipulated conditions should be submitted by the project proponent to the State Chief Wildlife Warden and an annual compliance certificate shall be submitted by the State Chief Wildlife Warden to Govt. of India.

57.3.4 Proposal for use of 2.00 ha of forestland from Girnar Wildlife Sanctuary for laying of underground electric line on Girnar hill, Ta. Junagadh City, Distt. Junagadh, Junagadh, Gujarat State

LIST OF PARTICIPANTS

1	Shri Prakash Javadekar, Hon’ble Minister for EF&CC	Chairman
2	Shri Babul Supriyo, Hon’ble Minister of State for EF&CC	Special Invitee
3	Shri C K Mishra, Secretary, MoEF&CC	Member
4	Shri Sanjay Kumar, DGF&SS, MoEF&CC	Member
5	Dr Anup Kr Nayak, ADGF(NTCA)	Invitee
6	Prof R Sukumar, Member, NBWL	Member
7	Dr H S Singh, Member, NBWL	Member
8	Shri R D Kamboj, Member, NBWL	Member
9	Dr Dhananjay Mohan, Member, NBWL	Member
10	Shri Ajay Saxena, PCCF&HoFF, Arunachal Pradesh	Invitee
11	Shri G Kumar, CWLW Arunachal Pradesh	Invitee
12	Shri M K Yadava, CWLW, Assam	Invitee
13	Shri Prabhat Kumar Gupta, CWLW, Bihar	Invitee
14	Shri Santhosh Kumar, CWLW, Goa	Invitee
15	Shri Sanjay Kumar Sisodiya, rep. of CWLW, Gujarat	Invitee
16	Shri P. K. Verma, CWLW, Jharkhand	Invitee
17	Shri Hari Shankar Upadhyay, CWLW, Odisha	Invitee
18	Shri Liandanwala, CWLW, Mizoram	Invitee
19	Shri Arindam Tomar, CWLW, Rajasthan	Invitee
20	Shri Sunil Pandey, CWLW, Uttar Pradesh	Invitee
21	Shri Rajiv Bhartari, CWLW, Uttarakhand	Invitee
22	Smt R. Sobha, CWLW, Telangana	Invitee
23	Shri Soumitra Dasgupta, IGF(WL), MoEF&CC	Invitee
24	Shri Nishant Verma, DIGF(NTCA)	Invitee
25	Shri Rakesh Kr Jagenia, DIGF(WL, MoEF&CC	Invitee
26	Shri P Ravi, Scientist, MoEF&CC	Invitee

Annexure 11

Details of the 3 linear projects in the Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park

Sr No	Project (Annexure with Application Details)	Diversion of Protected area (Ha)	No. of Trees to be Felled	Final GSWB Approval (Annexure No. with Minutes of the Meeting)	NBWL Approval (Annexure No. with Minutes of the Meeting)
1.	Doubling of railway line from Castlerock to Vasco Ann. 10 &12	128.28	20,758	16.12.2017 Ann. 2(ii)	17.12.2019 Ann. 1(i)
2.	4-Laning of NH 4A Ann. 18	31.015	12,097	02.12.2019 Ann. 2(iii)	07.04.2020 Ann. 1(ii)
3.	Goa-Tamnar Transmission Project (GTTP) Ann. 21	11.54	4146	02.12.2019 Ann. 2(iii)	07.04.2020 Ann. 1(ii)
	Total	**170.835**	**37,001**		

41/C

Annexure 12

GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
(NHDP-IVA Cell)

Transport Bhewan,
1, Parliament Street,
New Delhi-110 001

No. RW/NH-39013/26/2014/NHDP IVA

Dated: 13.03.2015

To

The Chief Engineer (NH,R&B)
Public Works Department,
Govt. of Goa,
Altinho, Panaji
Goa

Sub: **Proposal for 4-lanning of NH-17 and NH-4A in the state of Goa under NHDP III by NHDP-IV Cell in Ministry through Goa PWD.**

Ref: (i) Your letter No. PWDC CE-NH/R&B/14-15 dt. 19.12.2014.
(ii) Your letter No. Goa/PWD/CE/(NH),R&D/F.MORTH/2014-15/248 dt. 03.03.2015.

Sir,

Please refer to your letters dated 19.12.2014 & 03.03.2015 under reference regarding 4-laning of NH-17 and NH-4A under NHDP-III by Ministry through Goa PWD instead of NHAI.

2. Keeping in view of present status of projects and circumstances mentioned by you, it has been decided, with the approval of competent authority, to take up the 4-lanning of (i) NH-17 from Maharashtra / Goa border to Goa / Karnataka border and (ii) NH-4A from Panaji to Goa / Karnataka border in the State of Goa by NHDP-IV cell in Ministry through Goa PWD under NHDP-III as proposed by you. The Mode of delivery of project (Habrid Annuity / EPC / BOT) may be decided based on the viability of the project. The Goa PWD may proceed with the extant work of preparation of feasibility study / DPR for two above mentioned stretches of NH-17 & NH-4A through State fund which is under award stage.

Yours faithfully,

(Shrawan kr. Singh)
Superintending Engineer (NHDP-IVA)
For Director General (RD) & Special Secretary

Copy for kind information to:
(i) The Chairman (Kind Attention to Sri Ashish Asati, GM) NHAI, Dwarka, New Delhi.
(ii) The Chief Engineer (P-6), MORT&H, New Delhi.
(iii) The Regional Officer, MORT&H, Mumbai.

Annexure 13

(i) अनुसूची के मद 8 में प्रवर्ग ख के रूप में सूचीबद्ध सही परियोजनाएं और कार्यकलाप (नगरों या वाणिज्यिक परिसरों या आवासन का संनिर्माण) ;

(ii) अनुसूची के मद 7 की उपमद (च) के अधीन स्तंभ (3) और स्तंभ (4) की प्रविष्टि (ii) के अधीन आने वाली राजमार्ग विस्तार परियोजनाएं ;

परंतु यह और कि -

अ. खंड (i) में निर्दिष्ट परियोजनाएं और कार्यकलापों का अंकन प्ररूप 1 या प्ररूप 1क और अवधारणा योजना के आधार पर किया जाएगा ;

आ. खंड (ii) में निर्दिष्ट परियोजनाएं पर्यावरण और वन मंत्रालय द्वारा विनिर्दिष्ट माडल टीओआर के आधार पर ईआईए और ईएमपी रिपोर्ट तैयार करेंगी ;

(ख) अनुसूची में मद 7 की उप मद (च) के सामने स्तंभ (3) में प्रविष्टि (ii) के स्थान पर निम्नलिखित प्रविष्टि रखी जाएगी, अर्थात्:-

"(ii) राष्ट्रीय राजमार्गों का 100 किलोमीटर से अधिक विस्तार जिनमें अतिरिक्त 40 मीटर से अधिक विद्यमान संरेखणों पर और पुन: संरेखणों या उपमार्गों पर 60 मीटर क्षेत्राधिकार या भूमि अर्जन अंतवर्लित है ।"

[फा.सं.21-270/2008-आईए.III]

अजय त्यागी, संयुक्त सचिव

टिप्पण : मूल नियम भारत के राजपत्र असाधारण, भाग II, खंड 3, उपखंड (ii) में अधिसूचना सं. का.आ. 1533(अ), तारीख 14 सितंबर, 2006 द्वारा प्रकाशित किए गए थे और तत्पश्चात् निम्नानुसार संशोधित किए गए :

1. का.आ. 1733(अ), तारीख 11 अक्तुबर, 2007;
2. का.आ. 3067(अ), तारीख 1 दिसंबर, 2009;
3. का.आ. 695(अ), तारीख 4 अप्रैल, 2011;
4. का.आ. 2896 (अ), तारीख 13 दिसंबर, 2012; और
5. का.आ. 674(अ), तारीख 13 मार्च, 2013

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 22nd August, 2013

S.O. 2559(E).- Whereas by notification of the Government of India in the Ministry of Environment and Forests vide number S.O.1533(E), dated the 14th September, 2006 issued under sub-section (1) and clause (v) of sub-section (2) of section (3) of the Environment (Protection) Act, 1986 read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government directed that on and from the date of its publication, the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to the said notification entailing the capacity addition with change in process or technology and or product mix shall be undertaken in any part of India only after prior environmental clearance from the Central Government or as the case may be, by the State level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified therein;

And whereas the Government of India in the Ministry of Environment and Forests had constituted a High Level Committee under the Chairmanship of Member (Environment and Forests and Science and Technology), Planning Commission, vide OM No.21-270/2008-IA.III dated the 11th December, 2012 to review the provisions of Environmental Impact Assessment Notification, 2006 relating to granting Environmental Clearances for Roads, Buildings and Special Economic Zone projects and provisions under the OM dated the 7th February, 2012 issued by the Ministry of Environment and Forests regarding guidelines for High Rise Buildings;

And whereas one of the terms of reference (ToR) of the Committee was to review the requirement of Environmental Clearance for highway expansion projects up to the right of way of 60 meters and length of 200 kms under Environmental Impact Assessment notification;

And whereas the Committee has submitted its report to the Ministry and on this ToR, the Committee has recommended exempting highway expansion projects from the requirement of scoping and that Environmental Impact Assessment or Environment Management Plan for highway expansion projects may be prepared on the basis of model ToRs to be posted on Ministry's website and in respect of requirement of environmental clearance, the Committee has recommended that expansion of National Highway projects up to 100 kms involving additional right of way or land acquisition up to 40 mts on existing alignments and 60 mts on re-alignments or by-passes may be exempted from the preview of the notification;

And whereas the report of the Committee has been examined in the Ministry of Environment and Forests. Earlier, vide notification S.O. 3067(E), dated the 1st December 2009 all State Highway expansion projects, except those in hilly terrain (above 1000 m AMSL) and ecologically sensitive areas, have already been exempted from the purview of the Environmental Impact Assessment notification, 2006.

And whereas, keeping inter-alia in view the foregoing, the Ministry of Environment and Forests has decided to accept the aforesaid recommendations of the High Level Committee constituted vide OM No.21-270/2008-IA.III, dated the 11th December 2012;

Now, therefore in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (4) of rule (5) of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendment to the notification of the Government of India, in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 after having dispensed with the requirement of notice under clause (a) of sub-rule (3) of the said rule 5 in public interest, namely:—

2. In the said notification, —

(a) in paragraph 7, in sub-paragraph II, for item (i), the following item shall be substituted, namely:

'(i) "Scoping" refers to the process by which the Expert Appraisal Committee in the case of Category A 'projects activities, and State level Expert Appraisal Committee in the case of Category 'B1'projects or activities, including applications for expansion or modernization or change in product mix of existing projects or activities, determine detailed and comprehensive Terms of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought and the Expert Appraisal Committee or State level Expert Appraisal Committee concerned shall determine the terms of reference on the basis of the information furnished in the prescribed application Form 1 or Form 1A including terms of reference proposed by the applicant, a site visit by a sub-group of Expert Appraisal Committee or State level Expert Appraisal Committee concerned only if considered necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, terms of Reference suggested by the applicant if furnished and other information that may be available with the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned:

Provided that the following shall not require Scoping—

(i) all projects and activities listed as Category 'B' in item 8 of the Schedule (Construction or Township or Commercial Complexes or Housing);

(ii) all Highway expansion projects covered under entry (ii) of column (3) and column (4) under sub-item (f) of item 7 of the Schedule:

Provided further that—

A. the projects and activities referred to in clause (i) shall be apprised on the basis of Form I or Form IA and the conceptual plan;

B. The projects referred to in clause (ii) shall prepare EIA and EMP report on the basis of model TOR specified by Ministry of Environment and Forests;

(b) in the Schedule, against sub-item (f) of item 7, in column (3), for the entry (ii), the following entry shall be substituted, namely:—

"(ii) Expansion of National Highways greater than 100 km involving additional right of way or land acquisition greater than 40m on existing alignments and 60m on re-alignments or by-passes."

[F. No. 21-270/2008-IA.III]
AJAY TYAGI, Jt. Secy.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) vide notification number S.O. 1533(E), dated the 14th September, 2006 and subsequently amended as follows:—

1. S.O. 1737 (E), dated the 11th October, 2007;
2. S.O. 3067 (E), dated the 1st December, 2009;
3. S.O. 695 (E), dated the 4th April, 2011;
4. S.O. 2896 (E), dated the 13th December, 2012; and
5. S.O.674(E), dated the 13th March, 2013

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and Published by the Controller of Publications, Delhi-110054.

Annexure 14

Daily Order

Judge Name	Case No/Year	Date of Order	Daily Order
CHIEF JUSTICE AND HEMANT CHANDANGOUDAR	WP 3350/2019	24/02/2020	Perused the affidavit filed by Sri J.H. Eligar s/o Hanumanthappa Eligar, the General Manger (T) and Project Director, NHAI, Dharwad. The additional documents tendered today by the learned counsel appearing for the petitioners along with a memo shows that the length of NH-4A which is taken up for widening may be more than 100 Kilometers stretching over Karnataka and Goa. If that be so, it cannot be said that widening is undertaken for the length which is less than 100 Kilometers. The learned counsel appearing for NHAI seeks time, let the petition be listed for preliminary hearing on 9th March 2020.

Close Print

Typed Copy

Annexure 15

National Highways Authority of India
2nd Cross, Sattur Colony, Vidyagiri, Dharwad 580 004
(KARNATAKA STATE)

No. NHAI/PIU-DWD/26011/2019/3103 13.02.2019

To:

The Principal Chief Conservator of Forests (HoFF)
Forest Department
Government of Karnataka
Aranya Bhavan, 18th Cross Maileshwaram
Bangalore

Sub: Diversion of 84.853 Ha. of forest land for improvement of National Highway No. 4A from Km.0.0000 to Km. 84.4000 in Belgaum, Khanapur, Gunji & Ramnagar Bypass in favour of General Manager (Tech) I Project Director NHAI, Dharwad Diversions of 6.423 Ha. of Forest land in Kali Tiger Reserve of Dandeli-reg

1. Chief Conservator of Forest (Central), Bangalore addressed to Additional Chief Secretary, GoK, letter F.No.4-KRA 1043/2014-BAN/7837 dated 31.12.2015
2. This office letter No. NHAI/PIU-DWD/26011/2019/2723 dated 10.01.2019
3. Refer discussion between undersigned and Sh Basavraj Patil, Dir. Dandeh Tiger Reserve dated 07.02.2019

Sir,

1. With reference to above subject, I write to report that the above said road is passing through the forest areas of Belgaum forest division, Halyal forest division and Dandeli Wildlife Sanctuary. Out of the total requirement of 84.853 Ha of forest land required for the improvement of the said road, an extent of 78.43 Ha is falling under the forest areas of Belgaum and Haliyal Forest Divisions (from km.0.000 to Km 70.80) and balance 6.423 Ha is part of Dandeli Wild Life Sanctuary.

2. After examination of the proposal of the State Government and on the basis of the approval of the Regional Empowered Committee, the Central Government had conveyed its in-principle approval (State1) for diversion

of 78.43 Ha. of forest land falling outside the protected area (i.e. km 0.00 to Km 70.80) for improvement of National Highway No. 4A from Km 0.000 to Km 84.400 in Belgaum, Khanapur, Gunji and Ramnagar Bypass in favour of General Manager (Tech) & Project Director, NHAI, Dharwad vide letter at S.No. 1 under reference.

3. For the remaining 6.423 Ha of forest land inside the protected area i.e. coming under Dandeli Wildlife Sanctuary a decision has been taken in the Minutes of 32nd Meeting of Standing Committee of the NBWL under Ministry of Environment Forest and Climate Change Wildlife Division dated 25.2.2015.

4. The Committee clarified consolidation of existing highway is a National Priority and it was agreed to recommend the proposal keeping in view of that a new alignment is not feasible and least damage due to upgradation of existing NH can be addressed by appropriate mitigation measures. Further, stated that work will start only after finalisation of plan in consultation with Field Director, Dandeli and Anshi Tiger Reserve.

5. Further, mitigation plan was prepared for the said project and the same was approved by the PCCF (Wildlife) Bangalore vide their letter No. PCCF/WL/D/CR/46/2012 dated 09.02.208. However this office had requested for additional temporary land during construction of Elephant under pass for diversion of regular traffic.

6. Now the project is in advance stage and contractor have mobilised on the site since 5th November 2018. The action has also been taken by the concerned District Administrator to divert the regular traffic through other alternative routes vide notifications (copies enclosed)

7. It was hereby clarified that the work will be taken up within the available RoW (12 m) and following the existing alignment only. Actually, the additional requirement of 6.423 Ha of forest land was to accommodate curve improvement, widening/ reconstruction of culverts, construction of bridges, traffic diversion and certain safety features like fixing crash barriers plus additional temporary land was required for diversion of traffic during construction of Elephant Underpass.

8. As mentioned above, the contractors have mobilised completely and the design of highway has been finalised substantially. Moreover, the District Administration has also taken action to divert complete traffic during the

construction period to minimise the cutting of trees. Therefore, at this stage it is clear that NHAI will not require the said 6.423 Ha of forest land as envisaged earlier.

9. Under the above mentioned circumstances, the said diversion of 6.423 Ha of forest land within protected area of Dandeli Wildlife Sanctuary is not required as we are following the existing alignment within the available RoW i.e. 12m

10. Further it is brought to your notice that as said by the NBWL earlier, upgradation of the National Highway is of national importance since, it connects two states namely Karnataka and Goa, therefore its timely completion is very essential. Considering the above mentioned points, this office will continue to work in the given RoW (12m) and further process for diverting additional 6.423 Ha of forest land in the Protected Area may be dropped.

Thanking you

Yours faithfully,

Sd/-

Col A.K. Janbaz
GM (Tech) & Project Director

Copy to:

1. The Chief Conservator of Forests (Central) Ministry of Environment, Forests and Climate Change, Regional Office (Southern Zone) Kendirya Sadan, IVth Floor, E & F Wings, 17th Main Road, 2nd Block Koramangala Bangalore 560 034
2. The Additional Principal Chief Conservator of Forests, Forest Department, Government of Karnataka, Aranya Bhavan, 18th Cross Malleswara, Bangalore 560 003
3. Regional Officer, NHAI, RO, Bangalore – for information with request to pursue the matter with Forest Department
4. The Conservator of Forests & Field Director, Project Tiger, Dandeli 581 325

Annexure 16

Wild Life Report

Form for seeking recommendation of Standing Committee of NBWL/SBWL.

PART - I & II

(To be filled up by User Agency)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes

(a).Forests Clearance Type : Fresh

(ii). Proposal No. : FP/GA/ROAD/19978/2016

(iii). Name of Project: NH-4A, WLS/NP/RF Goa

(iv). Short narrative of the Project : Four Laning of existing Goa/Karnataka Border-Mollem Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa

(v). State : Goa

(vi). Category of the Project : Road

(vii). Shape of project land : Linear

(viii). Distance of the project from the boundary of the Protected Area (in km.): 0

(ix). Estimated cost of the Project (Rupees in lacs) : 59400

(x). Total period for which clearance is required (in year): 100

(xi). Total Project Area (in ha.): 33.972

(xii). Area of Forest Land required for this Projec t(in ha.): 32.085

(xiii). Non-Forest Land required for this Project (in ha.): 1.887

(xiv). Forest Land within Protected Area (in ha.): 31.015

(xv). Non-forest Land within Protected Area (in ha.): 0

(xvi). Project Area under Protected Area(in ha.): 31.015

(xvii). Project Area under Non-Protected Area (in ha.): 2.957

(xviii). Project Area inside Wildlife Sanctuaries(in ha.): 6.75

(xiv). Project Area outside Wildlife Sanctuaries(in ha.): 0

(xv). Project Area inside Conservation Reserve(in ha.): 0

(xvi). Project Area outside Conservation Reserve(in ha.): 0

(xvii). Project Area inside National Park(in ha.): 24.265

(xviii). Project Area outside National Park(in ha.): 0

(xix). Project Area inside Ecologically Sensitive Zone(in ha.): 0

(xx). Project Area outside Ecologically Sensitive Zone(in ha.): 0

A-
2. Details of User Agency

(i). Name : PUBLIC WORKS DEPARTMENT

(ii). Address1 : EXECUTIVE ENGINEER WD XV(NH) PWD PONDA

(iii). Address2 : NIL

(iv). State : Goa

(v). District : North Goa

(vi). Pin : 403401

(vii). Landmark : GOVT BUILDING PONDA TISK

(viii). Email address : ee15-pwd.goa@nic.in

(ix). Landline Telephone No. : 2313024 **(x). Fax No. :** 2313024

(xi). Mobile No. : 9370699881

(xii). Website (if any) : www.pwd.gov.in

(xiii). Legal status of User Agency : Central Government

A-
3. Details of Person Making Application

(i). First Name: Mohan

(ii). Middle Name: S

(iii). Last Name: Karki

(iv). Gender: Male

(v). Designation: Executive Engineer

(vi). Address 1: Executive Engineer WD XV(NH) PWD Ponda Goa

(vii). Address 2: NIL

(viii). State: Goa

(ix). District: North Goa

(x). Pin: 403001

(xi). Landmark: NIL

(xii). Email Address: ae1eexv@gmail.com

(xiii). Landline Telephone No.: 2313024

(xiv). Fax No.: 08322313024

(xv). Mobile No.: 9168694726

(xvi). Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: Annexure copy of documents in support of the competence

B. Details of Land required for the Project

B-1. Details of Protected Area

B-1.1 No. of Divisions involved in Protected Area

Division wise details of land			
S.no	**Division Name**	**Protected Area Name**	**Project Area under Protected Area**
1.	Wildlife - North	Bhagawan Mahaveer WLS & Mollem NP	31.015

B-1.2 Details of Districts involved

District wise breakup			
S.no	**District Name**	**Project Area under Protected Area(ha.)**	**Project Area under Non-Protected Area(ha.)**
1.	South Goa	31.015	2.957

B-1.3 Component wise breakup

Component wise breakup			
S.no	**Component**	**Project Area under Protected Area(ha.)**	**Project Area under Non-Protected Area(ha.)**
1	Road	31.014973	2.955

C. Maps of protected area

Division 1. : Wildlife - North

(i). Project Area under Protected Area (in ha.) : 31.015

(ii). Nature of the Project : Linear

(iii). No. of Segments : One

Patch/Segment wise details		
Segments	**Protected Area of segment(in ha.)**	**KML file of protected area of segment**
1.	31.015	View File

(iv). copy of Survey of India Toposheet indicating boundary of protected area: Annexure Survey of India Toposheet

(v). scanned copy of the Geo-referenced map of the protected area prepared by using DGPS or Total Station: Annexure scanned copy of the Geo-referenced map

D. Justification for locating the Project in protected area and details of alternates examined :

(i). copy of note containing justification for locating the Project in protected area: Annexure Justification

(ii). Whether a copy of map indicating location of alternative examined is required to be provided: No

(a). Reason for not providing such map Up-gradation of existing road

E. Employment likely to be generated

(i). Whether project is likely to generate employment ?: Yes **(a). Permanent/Regular Employment(Number of persons):** NIL **(b). Temporary Employment(Number of person-days):** 300000

F. Displacement of People due to the project, if any

(i). Whether project involve displacement?: No

G. Status of Environmental clearance

(i). Whether the Project requires Clearance under the Environment (Protection) Act 1986 ? : No

H. Whether proposal is for investigation/survey

(H-1).Whether proposal is for investigation/survey? : Yes

Division wise details of land		
S.no	**Time Required (in Days)**	**physical disturbance needed within the PA like(tree cutting,earth work etc.)**
1.	1095	3 years

(H-2). Details of the Bio diversity Impact Assessment report in case the proposal involves use of more than 50 ha. NP/WLS.

(a).Copy of the Bio diversity Impact Assessment report: Annexure Copy of Bio diversity Impact Assessment report

(H-3). Information on the projects undertaken by the proponent agency in the past in Protected Areas

(a).Upload file: Annexure Information on the projects undertaken by the proponent agency in the past in Protected Areas

(H-4). Details regarding compliance of the conditions on each proposal

(a).Upload file: Annexure Details regarding compliance of the conditions on each proposal **(H-5).Whether any matter related to the project is sub judice in any court of law?:** No

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
1	Additional Info.	Note on hill cutting methods
2	Additional Info.	Undertaking for hill cutting methods
3	Additional Info.	Revised Underpasses list
4	Additional Info.	A Note on hill cutting methods, additional chapter on underpasses in EIA and undertaking of the same is submitted
5	Additional Info.	Administrative Approval
6	Additional Info.	Alignment approval from the ministry
7	Additional Info.	Typical Cross sections of the proposed Road
8	Additional Info.	Minimum demand of the Forest Area
9	Additional Info.	No Violation of FCA 1980
10	Additional Info.	Net Present Value Certificate
11	Additional Info.	Unqualified commitement
12	Additional Info.	Cost of felling of trees certificate
13	Additional Info.	Justification
14	Additional Info.	Sy. No 73
15	Additional Info.	Sy. No 52
16	Additional Info.	Sy. No 53
17	Additional Info.	Sy. No 54
18	Additional Info.	Sy. No 55

19	Additional Info.	Sy. No 56
20	Additional Info.	Sy. No 57
21	Additional Info.	Sy. No 58
22	Additional Info.	Sy. No 59
23	Additional Info.	Wildlife and National Park Area Statement
24	Additional Info.	Archaeological Importance Certificate
25	Additional Info.	Cost Benefit Analysis
26	Additional Info.	Cost of Felling of trees certificate
27	Additional Info.	Compensatory afforestation certificate
28	Additional Info.	Project Description
29	Additional Info.	Alignment Plan
30	Additional Info.	Submission of Forest Diversion Proposal
31	Additional Info.	Submission of EIA Report
32	Additional Info.	Submission of Wildlife Passage Plan(Animal Underpasses)
33	Additional Info.	Letter for Revised Abstract of enumeration list

No. GOA/PWD/SE-IX(NH)/6446/ 1037
Government of Goa,
Office of the Superintending Engineer (NH, R&B),
Circle Office IX, Public Works Department,
Altinho, Panaji Goa.

Dated 26/02/2016

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the following stretch in the state of Goa is under the jurisdiction of Executive Engineer, Div. XV(NH), Public Works Department, Govt. of Goa, Ponda.

Four laning of Existing Goa/Karnataka border – Panaji, Goa section of NH-4A from Km. 97.000 to Km. 153.075 in the state of Goa on BOT(Toll) basis under NHDP-III (Anmod to Panaji Section)

Details of The Executive Engineer, Div.XV(NH)

Name of the EE : Vijay Mardolkar
Mobile No : 91686-94712
Address : The Executive Engineer
Works Division. Div. XV(NH),
Public Works Department,
Fourth Floor, Govt. Complex,
Opposite Court Building,
Tisk,
Ponda,
Goa.
E-mail ID : ee15-pwd.goa@nic.in
Telephone No : 0832 - 313024
Pin Code : 403 404

26/2/16
Superintending Engineer (NH, R&B)
Circle Office-IX, P. W. D

Copy to

1. Executive Engineer, WD- XV(NH), Ponda.
2. M/s Aarvee Associates, Hyderabad

GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
(NHDP-IV A)

Transport Bhawan,
No.1, Parliament Street
New Delhi-110001.

No. RW/NH/37015/14/2016/NHDP-IV A
Date:26th February, 2016

To

The Chief Engineer (NH),
National Highway Zone,
P.W.D. Altinho, Panaji Goa

Sub: - Four-Lanning of existing Goa/Karnataka Border - Panaji Goa Section of NH-4A from Km 84.000 to Km 153.075 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section). -Submission of Alignment plan of NH-4A.

Please refer to your letter no. GOA/PWD/CE(NH,R&B)/F. MORTH/2015-16/207 dated 05.02.2016 regarding alignment proposal for Anmod to Panaji section of NH-4A in the state of Goa.

2. As per discussions and presentation made in the Ministry on 02.02.2016, competent authority has approved the proposed alignment for the section of NH-4A from Km 84.000 to Km 153.075 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section) as per details given below:-

(i) From Km 84.000 to Km 96.000: Widening on valley side with improvement of the existing alignment with alternative-III as proposed by consultant and recommended by CE(NH) Goa.

(ii) From Km 96.00 to Km 118.00 & from Km 125.00 to Km 143.400: The proposed alignment is almost following the existing alignment with minor curve improvements and the same is accepted.

The stretch from km 118.000 to km 125.000 and from km 143.400 to km 153.075 has not been included because the work of 4-laning on these stretches have been already been taken up.

Yours faithfully,

(Nakul Prakash Verma)
AEE-NHDP-IV A
For Director General (RD) &SS

Copy to:-
1. The Regional Officer, MoRT&H, Mumbai.

Name of the Project:	**Wild life clearance for four laning of existing Goa/Karnataka Border-Panaji Goa Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section)**

Justification for Locating the Project Road in the Wildlife Sanctuary & National Park

The Project Highway is a section of NH-4A(Belgaum-Anmod-Ponda-Panaji) between Anmod and Panaji, passing through villages Molem, Sangod, Dharbandora, Piliem, Tiska, Candepar, Curti, Ambegal, Veling, Boma, Banastarim, Corlim, Velha goa, Ribandar. The entire stretch of NH-4A lies in the states of Karnataka and Goa. It provides an important link between NH-4 and NH-17.

Starting twelve Km of the project road in the state of Goa from km.84.133 to km 96.000 passes through the Mollem Wild life Sanctuary. It was declared a wildlife sanctuary in 1969 and renamed as Bhagwan Mahavir Wildlife Sanctuary. The core area of the sanctuary covering 107 square kilometres (41sqmi) was notified as Mollem National Park in 1978.

The widening of the existing carriage way, passing through the Mollem Wild life Sanctuary is the only feasible option as far as the technical aspects are concerned, that requires minimum land under the forest cover, instead of construction of a new 4-lane road.

However to minimize the impact on the Wild life, Environment and Forest the up-gradation and widening is restricted to the existing right of way as much as possible with a viaduct structure parallel to it on the valley side has been proposed. That would require minimum forest land for diversion.

Signature
Vijay Mardolkar
E.E. Div. XV
PWD (NH) Goa

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

Place: Ponda
Date: 19/07/18

PARAMETERS FOR EVALUATION OF LOSSES OF FORESTS

Cost Benefit Analysis

ANNEXURE – VI (b)

S. No	Parameters	Roads
1	Loss of value of timber, fuel wood and minor forest produce on an annual basis, including loss of man -hours per annum of people who are deprived livelihood and wages from the harvest of these commodities	Since the number and density of road side trees to be cut and surrounding vegetation is not high, therefore the amount of timber loss will be insignificant.
2	Loss of animal husbandry productivity, including loss of fodder	Nil
3	Cost of human resettlement	Nil
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc,) on forest land or which would require forest land if these facilities were diverted due to the project.	Nil
5	Environmental Losses (Soil erosion, effect of hydrological cycle, wildlife habitat, micro-climate upsetting of ecological balance)	Environmental value of 1 hectare of forest land with density 1.0 is estimated to be = Rs.126.74 lakh to accrue over a period of 50 years. Density of forest area to be diverted ranging from 0.8 to 1 rounded to 0.9 to accrue over a period of 50 years. The value will reduce with density, for example, if density is 0.9, a project which requires deforestation of 1 hectare of forest the value will work out at Rs.114.066 lakh. Value per hectare = 114.066 Forest are for diversion = 32.085Ha **Environmental loss = 3659.807 lakh**
6	Suffering to oustees	Nil

Parameters to determine benefits (notwithstanding loss of forests

ANNEXURE VI (c)

S.No	Parameters	Nature of proposal - Roads
1	Increase productivity attributable to the specific project	The project road will result in development of areas establishment of various small, medium and large scale indistries due to better transport facilities of goods and materials.
2	Benefits to economy	Improving the accesability will help in regional economic development
3	No of population benefited	All those who are travelling on the road can save on fuel and time, reducing pollution and carbon emissions. For those residing in the region will be less exposed

		to noise and air pollution
4	Employment Potential	Induced development of economy will help in generation of employment
5	Cost of acquisition of facility on non-forest land where feasible	Nil
6	Loss of (a) agricultural &(b) non-forest land wherever feasible	Nil
7	Cost of rehabilitating the displaced persons as different from compensatory amounts given for displacement	Nil
8	Cost of supply of free fuelwood to workers residing in or near forest area during the period of construction	Nil

Signature

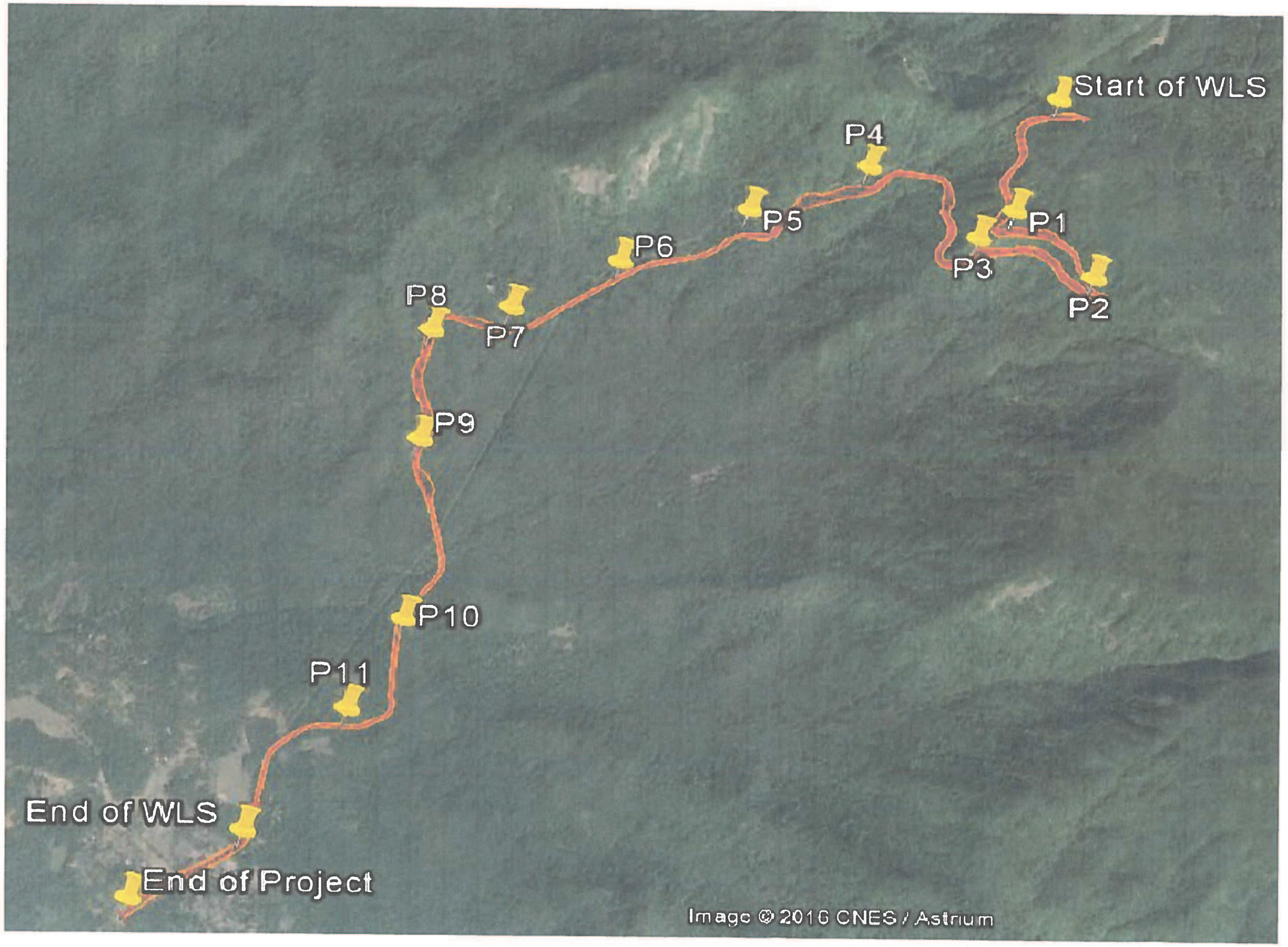
Vijay Mardolkar
E.E Div XV
PWD (NH), Ponda

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

Place: Ponda

Date :..19/07/18.....

Geo Reference Map of NH-4A
Km 84.133 to Km. 97.000


Start of WLS
P4
P5
P1
P6
P3
P2
P8
P7
P9
P10
P11
End of WLS
End of Project
Image © 2016 CNES / Astrium

EXECUTIVE ENGINEER
W.D. XV(NH) PWD;PONDA-GOA

S.No.	Easting	Northing
Start of WLS	421578.000	1704789.000
P1	421333.972	1704069.305
P2	421754.445	1703637.619
P3	421139.099	1703914.941
P4	420546.514	1704425.443
P5	419877.439	1704143.771
P6	419165.975	1703806.955
P7	418565.336	1703506.675
P8	418127.942	1703363.742
P9	418096.293	1702643.387
P10	418059.754	1701503.751
P11	417795.847	1700946.777
End of WLS	417287.000	1700208.000
End of Project	416721.000	1699804.000

Name of the Project: **Wild life clearance for four laning of existing Goa/Karnataka Border-Panaji Goa Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section)**

COST OF FELLING OF TREES CERTIFICATE

This is to certify that the Public Works Department (National Highways) Division of the Government of Goa, Ponda fully agrees to bear the cost of clearance / removal of the vegetative growth from the forest land proposed to be released for non forest use. This is for the four laning of existing Goa/Karnataka Border-Panaji Goa Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section)

Signature
Vijay Mardolkar
E.E Div. XV
PWD (NH), Ponda

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

Place: Ponda
Date: 19/07/18

Note on methods of hill cutting

a) Introduction of the project

National Highways Authority of India(NHAI) through the Public Works Department (PWD, NH division) of Government of Goa has decided for the development of Existing Goa/Karnataka Border - Panaji Goa Section of NH-4A from Km 84.000 to 153.075 (Anmod to Panaji section) in the state of Goa.

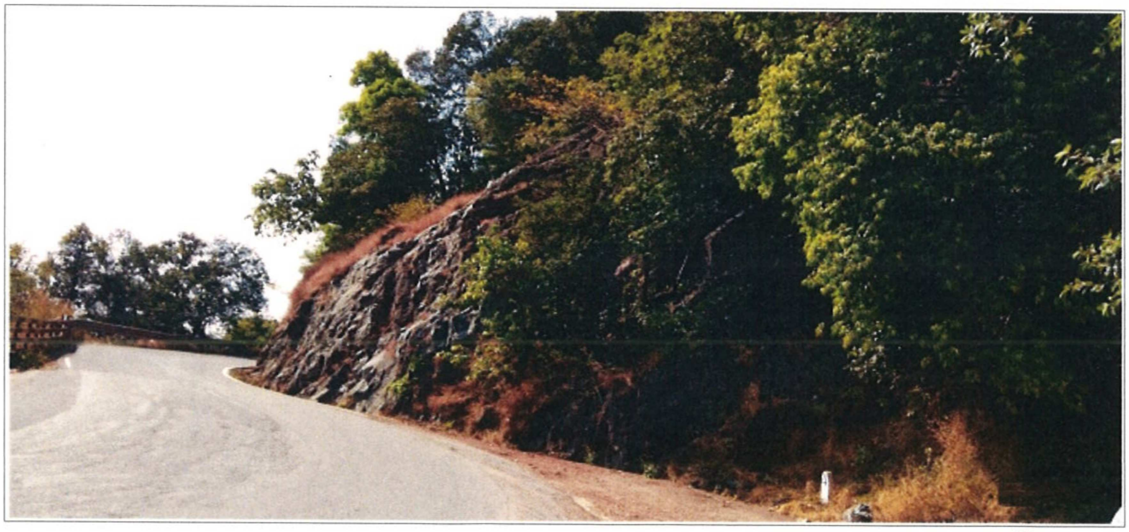
In the above mentioned stretch, from Existing Km. 84.000 to Km 97.000 falls under Bhagwan Mahaveer Wildlife Sanctuary, Mollem National Park and a part Reserved Forest. Please refer to the following table for the area required in the forest.

Table 1: Area required for the Proposed project

Area proposed in Wildlife sanctuary	6.750 Ha.
Area proposed in National Park	24.265 Ha.
Total area proposed in WLS & NP	**31.015 Ha.**
Area proposed in Reserved Forest	1.070 Ha.
Total area required for the Project	**32.085 Ha.**

Out of 24.265 Ha. Of National park, 0.96 Ha. Of area for a length of 570m (from Km. 85.380 to Km 85.950) is proposed for widening on hillside which requires cutting of the hill. The hillside comprises of hard rock, disintegrated rock and soil material.

Below figures shows the terrain condition at the hill cut location.



EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

Vivo V9
Dual Rear Camera
2018.12.13 13:35

The State board for Wildlife in its meeting opined that blasting in this area shall be avoided and alternative methods shall be explored. In this regard, following are the methods studied and given for your reference.

b) METHODS OF HILL CUTTING

1. MANUAL ROCK BREAKING

In modern construction projects, manual methods of rock breaking are only used for very small quantities of material. In the past it was the main means of excavation, and was used extensively in the construction of early road, canal and railway slopes. Manual rock breaking involved loosening, wedging and removal of individual natural blocks using bars and chisels. Areas of strong rock, which could not be excavated by hand, were avoided. The minimum volume of rock possible to create the face was removed.

The energy input of manual rock breaking is low and therefore minimal induced instability is produced. Manual techniques are extremely labour intensive and costly in today's market and find little or no place in modern road excavation, except in specialist activities such as scaling of potential failures, after the main excavation.

2. MECHANICAL ROCK BREAKING

2.1 Method of Application

Removal of rock using mechanical plant can be both efficient and cost-effective. The controlling factors on mechanical excavation are the strength of the rock, the degree of jointing, the fracturing and disturbance of the rock mass, the attitude of any fabric (e.g. bedding, banding, etc) and the size of the mechanical plant available. Compared to explosive excavation, mechanical excavation will generally produce lower levels of disturbance and vibration and therefore induced instability. In suitable rock material, costs are generally lower than for explosive excavation, but if unforeseen strong or relatively unfractured rock is encountered, and it cannot be mechanically excavated, then significant extra costs may be incurred.

Mechanical breaking/excavation includes direct excavation, ripping and pneumatic breaking. The method used depends on the rock mass being excavated. Direct excavation is carried out by mechanical excavators, such as back-actors and wheeled shovels. Ripping is carried out by tracked plant, usually bulldozers, mounted with rippers. Pneumatic breaking or "peckering" is carried out by excavators mounted with pneumatic breaking tools.

Pneumatic breaking can generally be used to break even the strongest and least fractured rock. For large volumes of rock material it is a relatively inefficient technique and, therefore, may only be cost-effective for limited volumes that cannot be excavated by other mechanical means. However, the plant and personnel for pneumatic breaking may be available on a road construction site, and therefore it may be more cost-effective to utilise it for limited areas, rather than to mobilise more specialist plant (e.g. equipment for drilling and blasting).

2.2 Advantages and Disadvantages

The advantages and disadvantages of Mechanical breaking/excavation in comparison with blasting are listed below.

- Mechanical breaking can be used where blasting is not permitted.
- Mechanical breaking works best in the perpendicular position taking full advantage of the weight of the host machine and gravity generally.
- Maneuverability and access of large machines to the faces can be difficult.
- Drilling plant must have a free-face to work effectively.
- Mechanical breaking has a slow rate of progress.
- Mechanical breaking is noisy during drilling.

3. CHEMICAL ROCK BREAKING

3.1 Method of Application

Chemical rock breaking has recently become more popular, in response to decreasing public tolerance of environmental pollution from dust and noise. Chemical rock breaking is quieter than explosive or mechanical breaking, although, it has some drawbacks which are discussed below. Chemical breaking should only be used when blasting is not allowed and mechanical breaking will not work.

In contrast to mechanical breaking and blasting, a non-explosive chemical demolition does not cause flyrock, noise, ground vibration, gas or dust when used properly. The chemical agent is mixed with an appropriate quantity of water and poured into cylindrical holes drilled in the rock or concrete to be demolished. The agent hardens and expands, causing systematic fracturing of the rock mass. The fractured material can be broken down further as necessary with a pick hammer or a pneumatic breaker.

The drilling equipment for the application of chemical products does not need to be of the same size and drill power as that used for drilling in blasting operations. In many instances hand-held drilling equipment can be used to produce the holes in which the chemical compound is poured. The allowable range of hole diameter is 36 – 50 mm (1 3/8" - 2").

Chemical rock breaking requires a very high charge weight to fracture the rock and consequently many holes have to be drilled. This drilling is slow and noisy and produces dust. The larger the hole diameter, the greater the expansive stress becomes. The quantity of the chemical product to be used differs with the hole diameter and spacing. The chemical products are often mixed with water (water to chemical ratio by volume ranging between 1:3 to 1:1).

3.2 Advantages and Disadvantages of Chemical Breaking

Advantages:

- Low noise (other than during drilling).
- No flyrock and overall safety is enhanced.
- Elimination of ground vibrations (with the exception of during secondary breaking where the capacity of mucking equipment is small).

- No licenses are required for operations.

However, this method of excavation has several significant drawbacks, which are listed below:

Drawbacks:

- Secondary breaking may be necessary which may take considerable time.
- Long cycle times are required to drill, load the agent, wait for a reaction, and remove (muck out) the fractured rock.
- The chemical agent is unsuitable for use in overhead holes.
- Uncontrolled leakage

The disadvantages are significant, in particular for programming. For safety reasons, the drill, pour and wait cycles generally need to be specified before mucking out the broken rock. It is estimated that in normal operations, 6 hours is the minimum required time for the chemical compound to complete its effect on the surrounding rock and hence allow excavation to begin. However, this may not always be the case. The duration depends very much on the homogeneity of the rock and the effectiveness of the drilling operation.

Chemical splitting works very effectively in rock with inherently high uniaxial compressive strength. It should also be remembered that there are major safety problems associated with using this method overhead, not least of which is the difficulty in pouring the chemical into the drillholes. The use of expandable cartridges overcomes this problem.

Another significant factor influencing to the effectiveness of the method is the "fracture index" of the rock. If the rock has a high fracture intensity, significant amounts of expansive energy exerted by the chemical splitting may be dissipated, leading to insufficient breakage.

4. BLASTING

4.1 Method of Application

There are three basic methods of blasting, namely bulk blasting, presplitting and smooth wall blasting. They all work by generating stress waves and gas pressure which propagate away from the charge into the rock mass. The factors which should always be considered for blasting include rock properties, the diameter of the perimeter holes, the spacings desired, the type of explosives to be used, the buffer distance available and the disturbances allowed beyond the planned blasting boundary.

Where the accurate removal of rock and side slope stability are important factors, "controlled blasting" techniques are employed. The success of controlled blasting techniques, which are used in both underground and surface excavations, depends primarily on the geology of the rock formation being blasted. In hard, massive rock, controlled blasting techniques are usually successful, but in loose, unconsolidated formations, good results may not be possible. Controlled blasting techniques cannot be regarded as a prescriptive method of eliminating problems associated with blasting. Slopes should still be designed in accordance with the geological conditions.

There are two methods of controlled blasting – presplitting and smooth wall blasting. The selection of the right one depends mainly on rock characteristics and on how feasible the technique is under prevailing conditions. Presplit blasting and smooth blasting differ mainly in that presplitting is performed before the primary blast is detonated, while smooth blasting usually occurs after the main field has been blasted. Presplitting also involves shorter hole spacing and heavier charging than smooth blasting. In the latter, however, the result depends to a great extent on the ratio of spacing to burden. In both methods overcharging must be avoided not only in the perimeter holes but also in the adjacent holes, since ground vibrations produced by the bulk blasting cause cracks that spoil the result.

Presplitting may not be the preferred option for controlled blasting, as the simultaneous detonation of the presplit holes can cause excessive peak particle velocities and further fracturing, particularly in already heavily jointed rock formations.

When using any of the methods described, it is recommended that conservative trials be conducted to determine whether the particular method can be successfully applied, and if so, to establish the optimum hole spacing and excavation layout.

4.2 Advantages and Disadvantages

Blasting is cheap, fast, and able to produce a large volume output. However, blasting also produces ground vibration, dust, flyrock, and (in certain circumstances) delays to traffic. In considering the available blasting methods, the use of explosives under controlled blasting methods appears to be the most economical option for large volume output in the majority of projects. Conclusions are summarized below:

- Controlled blasting is often the only practical method in terms of economy, time and operational considerations.
- Each blast location should be individually mapped. A smooth blasting method should be adopted to ensure minimal overbreak from the explosive charges.
- The safety and pollution risks arising from blasting can be managed and mitigated, and blast designs can be optimised to ensure minimal environmental impact.
- Disruption to the works programme will be shorter if blasting is used. Other methods are more time-consuming.
- Where final founding levels are important, as for permanent berms, it is recommended that drilling should stop at that level only (i.e. no sub-drill). The final trimming should be done with mechanical breakers. Close pattern drilling in these cases will produce a relatively clean excavation limit.

5. OTHER METHODS

5.1 Penetrating Cone Fracture (PCF)

PCF is a new, non-explosive, high impact method, which utilises cartridges of propellant classified as ammunition rather than explosive. Currently, however, the method does require a blasting permit. The method has particular application where rock breakage is required in vibration, gas or flyrock sensitive sites. PCF breaks hard rock by burning propellant to generate gas which is injected into the lower part of a short drillhole. The propellant used is commercially available nitrocellulose compound contained in cartridges.

Vibration levels induced by this method are around half the levels produced by the same weight of explosive, enabling the system to be used within several metres of most structures. The system effectively utilises gas energy to produce coarse fragments without c rushing and only minimal dust. Gaseous fumes are negligible and considered inconsequential. Importantly, no noxious gases are produced as with conventional high explosives and blasting agents. Re-entry to the work place is therefore almost immediate.

Low velocity flyrock is occasionally produced when using PCF, although generally this is confined to a distance of no more than l0 metres. The ejected rock is of coarse fraction size which restricts how far it travels. Depending on site geometry, the technology is considered safe at distances of 20 metres or more, without the requirement for bulkhead doors, screens, or other flyrock management measures, although safety precautions such as an on-site warning system and minimum clearance distances for equipment and personnel are recommended.

Both air over pressure levels and noise are relatively high, and of a higher frequency than that from blasting. This reduces the damage potential, but increases noise levels. The technology can comply with occupational noise guidelines, but some preventive measures will generally be necessary if the equipment is to operate in the immediate vicinity of publicly accessed areas.

The method is considered appropriate for sensitive construction sites where rock breakage remains necessary. The system offers advantages over drill and blast methods because it is a continuous excavation method that produces a lower level of induced vibration and dust, with the virtual elimination of flyrock and noxious gases. The advantages over other non-explosive methods include the increased hourly yield per firing and the safe classification of the system components."

5.2 Gas Cylinders

The gas cylinder method uses a carbon dioxide filled cylinder placed within the drill hole. The method has not been successfully demonstrated. In addition, a blasting permit would be required for the use of gas cylinders.

5.3 Water Jets

This is a recent (and very expensive) technique introduced to the rock cutting industry requiring bulky and sophisticated equipment. It has not been proven in a large scale commercial operation.

5.4 Diamond Disk Cutting

Access for a large diameter disk cutter is limited on most sites and penetration rates are very slow. It is thought that the accuracy of cutting into randomly jointed rock offered by disk cutting does not justify the expense of setting up the diamond cutting equipment.

5.5 Composites

The composite method uses a series of drilled holes to assist mechanical breakers in breaking up rock masses. Line drilling the perimeter of the excavation can avoid overbreak and damage from the hammering and relief holes give the necessary free-face for the rock to move into. The method is very slow and noisy and problems arising from the size of the mechanical breaker still exist.

Table 2 – Comparison of Rock Breaking/Excavation Methods

Breaking/Excavation Method	**Characteristics**
Manual Breaking	➢ Extremely labour intensive ➢ Specialist activities such as scaling of potential failures, after the main excavation
Mechanical Breaking	➢ Slow ➢ Ineffective in massive rock ➢ No free-face ➢ Noise during drilling ➢ Excavation equipment needs to be matched to the specific ground conditions ➢ No Flyrock
Chemical Breaking	➢ Dangerous and unsafe ➢ Impossible to work overhead ➢ Very expensive ➢ Slow, programming difficult ➢ Noise comes during drilling ➢ Uncontrolled leakage
Drill and Blast	➢ Fast ➢ Cheap ➢ Acceptable control over end result ➢ requires blasting ➢ Vibration, dust, flyrock & delays traffic movement
Water Jets and Laser Cutting	➢ Not proven in excavation of rock slopes
Penetrating Cone Fracturing	➢ Effective in massive rock ➢ Easy to use ➢ Cycle times fast ➢ Effective programming ➢ High degree of fragmentation control ➢ Safe ➢ Costly ➢ Relatively slow compared to Drill and Blast ➢ Flyrock
Gas Cylinders	➢ Not practical
Diamond Cutting	➢ Suitable for architectural finish ➢ Slow and expensive

Given the terrrain condition and the depth of rock to be cut, Mechanical breaking would suitable over all the methods. In this operation, only small lumps of rock would be cut which makes easy to manage the work during construction. It is understand from the above details that the noise will be generated in each method for some extent. In order to mitigate this problem, Noise barriers shall be used during cutting. Though it is a time taking and slow process of cutting, there won't be any flyrocks and vibrations in this process. Flyrocks may harm the flora and fauna in the vicinity.

Considering all the aspects, It is recommended to use the Mechanical breaking method for cutting the hill portion.

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

EXECUTIVE SUMMARY

E.1 Introduction

The Government of India has envisaged to create a world-class infrastructure facility, to boost the economic development in the country, for which National Highways Authority of India (NHAI) plays key role. NHAI has been entrusted to implement the development of some of the stretches of National Highways under National Highway Development Programme on EPC/BOT basis. As part of this endeavor, the Public Works Department (PWD) of Government of Goa has decided for the development of existing Goa/Karnataka Border- Panaji Goa Section of NH-4A from Km 84/133 to 153/075 on BOT (Toll) basis under NHDP-III (Anmod to Panaji section) to four Lane configuration.

Public Works Department (PWD) of Goa has appointed M/s Aarvee Associates Architects Engineers & Consultants Pvt. Ltd., Hyderabad to provide consultancy services for detailed engineering study for the above road section.

The project stretch excludes following reaches:

1. From Km 118.000 (Kandepar) to Km 125.000 (Safa Maszid)
2. From Km 143.400(Ella) to Km 153.075 (Panaji).

E.2 Project Description

The Project Highway is a section of NH-4A(Belgaum-Anmod-Ponda-Panaji) between Anmod and Panaji, passing through villages Molem, Sangod, Dharbandora, Piliem, Tiska, Candepar, Curti, Ambegal, Veling, Boma, Banastarim, Corlim, Old Goa, Ribandar. The entire stretch of NH-4A lies in the states of Karnataka and Goa. It provides an important link between NH-4 and NH-17. The entire alignment passes through hilly and rolling terrain except few reaches towards Goa.

As the project road is passing through the Bhagawan Mahaveer Wildlife Sanctuary the present forest diversion proposal covers only the stretch from Existing Km 84.133 to Km 97.000. This includes Reserved Forest area between Km 95.550 to Km 97.000 on RHS and from Km 96.300 to Km 97.000 on LHS . The Wildlife area,exists between Existing Km 84.133 to Km 95.550 on RHS, National Park from Km 84.133 to Km 96.300 on LHS.

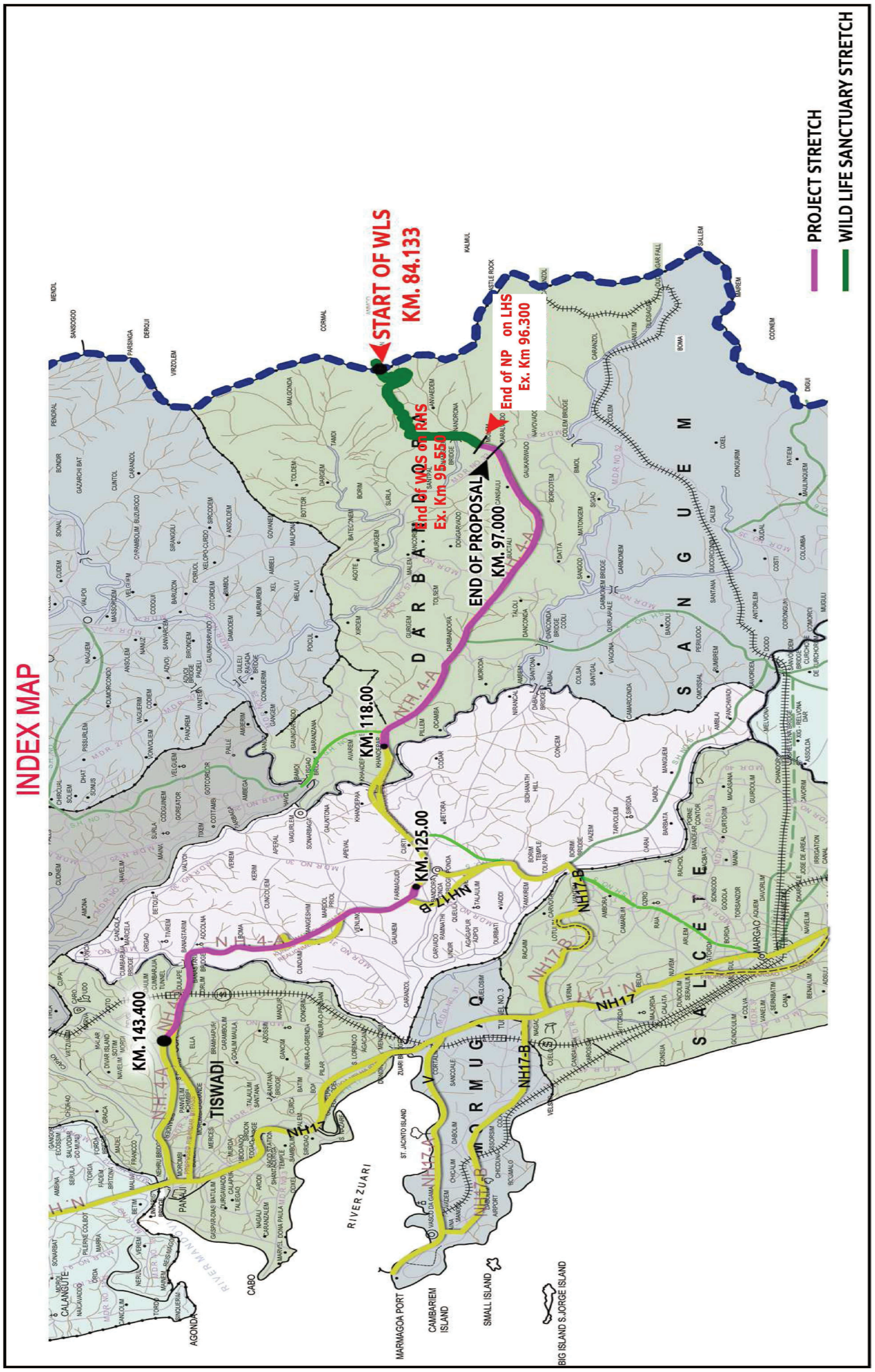

INDEX MAP
START OF WLS
KM. 84.133
End of NP on LHS
Ex. Km 96.300
End of WLS on RHS
Ex. Km 95.550
END OF PROPOSAL
KM. 97.000
KM. 118.00
KM. 125.00
KM. 143.400
D A R B A
S A N G U E M
S A L C E T E
M O R M U G A O
TISWADI
NH-4A
NH17
NH17-A
NH17-B
PANJI
MARGAO
CALANGUTE
CABO
RIVER ZUARI
MARMAGOA PORT
CAMBARIEM ISLAND
SMALL ISLAND
BIG ISLAND S.JORGE ISLAND
PROJECT STRETCH
WILD LIFE SANCTUARY STRETCH

Figure: E.1 Index Map

E.3 Alignment Option Study

Reconnaissance, map studies and detailed investigations of the influence area were carried out for identifying the existing road network, land use pattern and industrial activities along the project corridor. Different alignment options are considered, evaluated and recommendations are presented in the subsequent sections.

Project road has inconsistent terrain conditions with a mix of hilly, highly rolling and plain topography. The following standards have been followed for improving the horizontal geometry. For the purpose of horizontal design the project road is divided in to following sections.

Section I: Km 84.133 to 97.000 (Mountainous/Steep terrain).

The Project Highway starts with mountainous/steep terrain form Km 84.133 at Goa/Karnataka border. Existing alignment has substandard horizontal as well as vertical geometry due to steep terrain from Existing Km 84.133 to Km 94.000. There are hairpin bends, where the speed about 20 kmph.

The consultants have studied in details for improving the horizontal geometry of existing 2 lane carriageway as well as new 2 lane carriageway in consultation with the PWD. The stretch under consideration is passing through wild life sanctuary. Hence, following options were studied for improvement proposal.

Option - 1: Widening on hill side

Hard rock outcrop is visible in this stretch. For widening new carriageway on hill side requires blasting operations and frequent closing of live traffic. Further, blasting may pose sever impact on wild life in surrounding area.

There are locations, where landslides also observed in this stretch. Hence widening on hill side may result in heavy breast walls.

Option - 2: Widening on Valley side without improving the existing

Widening on valley side do not requires closing live traffic. It will have minimum impact on wild life, since it do not requires any blasting operations.

Widening new carriageway on valley side requires construction of either retaining wall or via-duct to support new carriageway.

To have minimum impact on local environment and ease of construction, the consultants have proposed via-duct for the new carriageway. It be independent of existing carriageway (no common median) and will comply with geometric standards stipulated in 4 laning manual.

Option - 3: Widening on Valley side with realignments

Cost of viaduct is directly proportional to the length of via-duct. The consultants have studied in detail for feasibility of shortening the length of via-duct within permissible gradients. After detailed study at site, based on the topographical survey and preliminary design of vertical alignment, it was identified that from Km 89 to Km 92 can be connected with smooth geometry within permissible gradients. Based on above three options, Option 3 is most feasible, even though the construction cost is higher than the options 1&2.

Table E.1: Merits and Demerits

Description	Option-1	Option-2	Option-3
Traffic Management	Road closure during blasting and removal of debris operations	Road closure while forming ramps on the valley side	Road closure while forming ramps on the valley side
Stability issues	It would not be possible to cut hill to the required slope since that would disturb road on the hill side. Thus, adequate slope stabilizing structures are to be provided to prevent landslides.	Existing slopes on hill side are to be stabilized. Construction of viaduct may not involve any stability related concerns.	Existing slopes on hill side are to be stabilized. Construction of viaduct may not involve any stability related concerns
Structures involved	Breast Walls, Soil Nails etc. may be required for ensuring slope.	Viaduct structure; earth retaining structures	Viaduct structure; earth retaining structures
Environmental issues	This option would involve disturbing of hill slopes in the wild life sanctuary.	This option would involve insignificant disturbance to environment during construction time.	This option would involve insignificant disturbance to environment during construction

Description	Option-1	Option-2	Option-3
Extra Forest Land to be acquired	26.4 hectares. This option would involve disturbing of hill as the complete widening on hill side and the entire land will be occupied. In this option revegetation of forest cover will not be possible as additional 2 lanes will land on hills.	26.6 hectares. This option would involve insignificant disturbance of hill as the new 2 lane will come on valley side and the land required is only at pier locations. In this option the above land is utilized for construction project. After the construction the vegetation of forest cover will be reinstated except at pier locations which is the nominal area.	11.1hectares. This option would involve insignificant disturbance of hill as the new 2 lane and some existing 2 lane realignments will come on valley side and the land required is only at pier locations. In this option the above land is utilized for construction project. After the construction the vegetation of forest cover will be reinstated except at pier locations which is the nominal area.
Geometric alignment	Will follow the existing alignment; Substandard curves will remain.	Will follow the existing alignment; Substandard curves will remain.	Sharp sub-standard curves will be improved.
Construction time	Less compared to other two options	Viaduct formation will be time consuming.	Slightly more time compared to option 2 since substructure height will be higher.

Recommended Option:

Since, the project stretch falls in wildlife sanctuary and National Park, Option-3 which involves minimum acquisition of the forest land falling in wildlife sanctuary and National Park and improvement of the existing alignment to the proper geometric standards is recommended.

The alignment options were discussed with the competent authority (Ministry) in the presence of PWD officials at Delhi on 02/02/2016. The alignment Option-3 is approved by Authority vide letter no. RW/NH/37015/14/2016/NHDP-IV A, dated 26.02.2016.

Typical Cross Sections (TCS):

TCS-VIII(a): Typical Cross Section for 4 Lane divided highway at same level with Raised Median (Cut Portion)

The TCS indicates widening of the existing road on hill side for a length of 600m starting from Km 85.380 to Km 85.980. Here widening on valley side is not feasible due to hair pin bend on RHS. Hence, to avoid overlapping of the bend section of hair pin, the existing road has been proposed to widen on LHS with cutting. This is the only location where the natural hill will be disturbed. The area proposed to cut is about 1.35 hectares with a width of 13m.

TCS-VIII(b): Typical Cross Section for 4 Lane divided highway with 2 Lane Elevated Structure on Valley Side

The TCS indicates widening of the existing road on Valley side wherever the existing road is geometrically suitable for 4 lane standards.

This TCS is applicable in seven locations covering a total length of about 4.027 km of the project road.

TCS-VIII(c): Typical Cross Section for 4 Lane divided highway with 4 Lane Elevated Structure.

The TCS indicates construction of 4 lane Elevated Corridor wherever the existing road is geometrically not suitable for 4 lane standards. Also in places wherever the existing sharp curves are smoothened to match up with the proposed geometrics standards. This TCS is applicable in six locations covering a total length of about 3.040 km of the project road.

TCS-VIII(d): Typical Cross Section for 4 Lane divided highway in Plain/Rolling terrain.

The TCS indicates widening of the existing road on LHS/RHS to 4 lane highway standards.

This TCS is applicable in One location covering a total length of about 4.400 km of the project road.

TCS-VI: Typical Cross Section for approaches to Vehicular Underpass (VUP) with Slip Roads on both sides.

This VUP facilitates smooth movement of Collem-Sacordem road traffic. This TCS is applicable in One location covering a total length of about 0.800 km of the project road in Reserve Forest area (out side of WLS).

Details of the forest Area needed for diversion:

Total area for diversion(Wildlife Sanctuary+National Park +Reserved Forest)–32.085 Ha

Area Proposed in Wildlife sanctuary and National Park - 31.015 Ha

Area proposed for diversion in Wildlife Sanctuary - 6.750 Ha.
Area proposed for diversion in National Park - 24.265 Ha.
Permanent Area for Diversion in Wildlife/National Park – 11.1 Ha.

Area Proposed and Permanent for diversion in Reserved Forest – 1.070

Area for temporary diversion - 19.915 Ha.(Wildlife & National Park)

Area for Permanent Diversion:

As per the recommended option, the proposed structure involves construction of a via duct on valley side and similar structures of lesser length will be constructed on hill side wherever curves will be improved. Total area for permanent diversion in the project road is dependent on the total number of piers constructed and the cross-sectional area of each pier.

The area for permanent diversion also includes one Ha of cutting of the hill to improve the existing alignment from Existing Km. 85.400 to 86.000.

In addition to the above paved shoulders are also proposed on either side thoroughout the length of the project road.

As the proposed improvements are of permanent in nature a total 11.1 Ha of fresh forest land in wildlife sanctuary/National Park area is needed for diversion.

Area for Temporary Diversion:

Given the hilly terrain of the project road, it was proposed to form 18m wide temporary road for the movement of materials and machinery at the foot of the hill.

Approach points will be identified based on the slope and other conditions convenient to reach the temporary road.

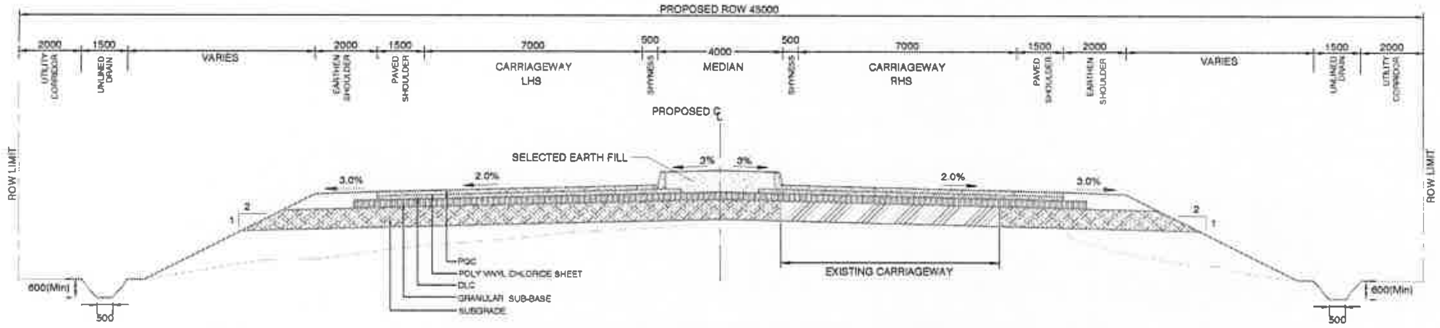
In addition to this, two locations were identified at Km 90.400 to 90.600 with an area of 0.4 Ha and the second one at Km 91.800 to 92.000 with an area of 0.6Ha for storage of construction materials.

The above mentioned area is needed to execute improvements to the existing road. Hence this 19.915 Ha of area will be released back for afforestation after completion of the proposed improvements to the road.

Proposed Animal Underpasses in Wildlife Sanctuary & National Park

Locations	Design Chainage	Coordinates		Proposal	Provisional Specifications
		Latitude	Longitude		
1	84.400L	15°25'4.94"N	74°16'3.24"E	Underpass	1 X 12 m X5 m
2	92.150R	15°23'45.38"N	74°14'16.09"E	Underpass	1 X 20 m X5 m
3	93.170R	15°23'14.34"N	74°14'10.94"E	Underpass	1 X 12 m X5 m
4	93.850R	15°23'2.90"N	74°13'58.21"E	Overpass	1 X 12 m X5 m

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA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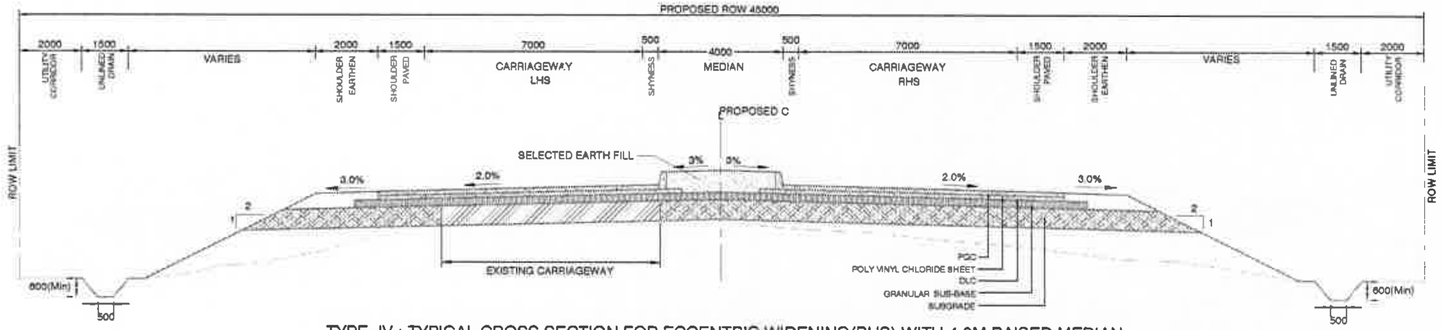
2000
1500
VARIES
2000
1500
7000
500
4000
500
7000
1500
2000
VARIES
1500
2000
UTILITY CORRIDOR
UNLINED DRAIN
EARTHEN SHOULDER
PAVED SHOULDER
CARRIAGEWAY LHS
SHYNESS
MEDIAN
SHYNESS
CARRIAGEWAY RHS
PAVED SHOULDER
EARTHEN SHOULDER
UNLINED DRAIN
UTILITY CORRIDOR
PROPOSED ℄
ROW LIMIT
SELECTED EARTH FILL
3%
3%
3.0%
2.0%
2.0%
3.0%
2
1
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
EXISTING CARRIAGEWAY
600(Min)
500
600(Min)
500
ROW LIMIT

TYPE - III: TYPICAL CROSS SECTION FOR ECCENTRIC WIDENING(LHS) WITH 4.0M RAISED MEDIAN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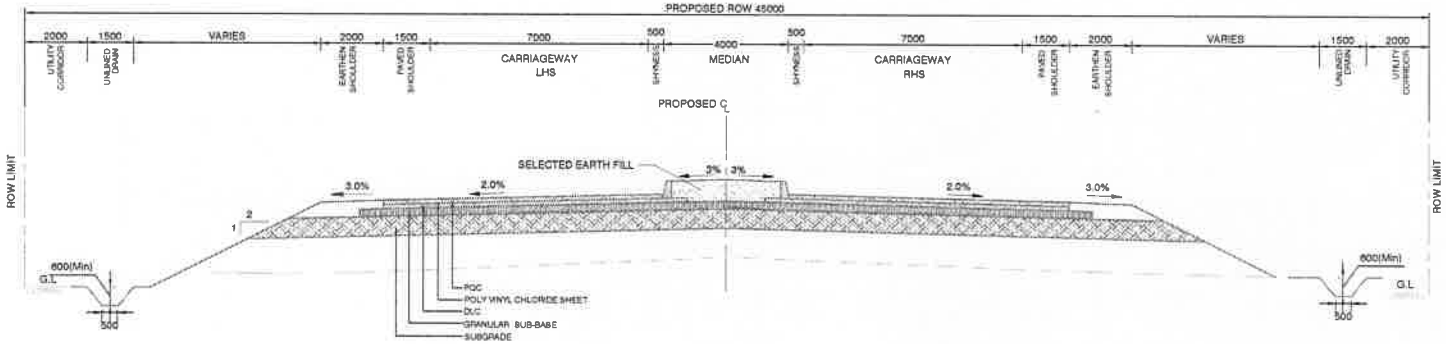
VARIES
2000
1500
7000
500
4000
500
7000
1500
2000
VARIES
1500
2000
UTILITY CORRIDOR
UNLINED DRAIN
SHOULDER EARTHEN
SHOULDER PAVED
CARRIAGEWAY LHS
SHYNESS
MEDIAN
SHYNESS
CARRIAGEWAY RHS
SHOULDER PAVED
SHOULDER EARTHEN
UNLINED DRAIN
UTILITY CORRIDOR
PROPOSED C
ROW LIMIT
SELECTED EARTH FILL
3%
3%
3.0%
2.0%
2.0%
3.0%
2
1
EXISTING CARRIAGEWAY
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
600(Min)
500
600(Min)
500
ROW LIMIT

TYPE -IV : TYPICAL CROSS SECTION FOR ECCENTRIC WIDENING(RHS) WITH 4.0M RAISED MEDIAN


PROPOSED ROW 45000
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1500
VARIES
2000
1500
7000
500
4000
500
7000
1500
2000
VARIES
1500
2000
UTILITY CORRIDOR
UNLINED DRAIN
EARTHEN SHOULDER
PAVED SHOULDER
CARRIAGEWAY LHS
SHYNESS
MEDIAN
SHYNESS
CARRIAGEWAY RHS
PAVED SHOULDER
EARTHEN SHOULDER
UNLINED DRAIN
UTILITY CORRIDOR
PROPOSED ℄
ROW LIMIT
SELECTED EARTH FILL
3%
3%
3.0%
2.0%
2.0%
3.0%
2
1
600(Min)
G.L
500
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
600(Min)
G.L
500
ROW LIMIT

TYPE - V: TYPICAL CROSS SECTION FOR 4-LANING WITH 4.5M RAISED MEDIAN (RE ALIGNMENT & BYPASS)

NOTE :
ALL DIMENSIONS ARE IN MM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE
G.KRISHNA	M.P.SARMA	P. SRINIVASA RAO	S.S.REDDY	06-02-2016

REVISION NO	DATE	DESCRIPTION	REVISED BY
R1	10-08-15	WITH RIGID PAYMENT OPTION AS PER CLIENT	
R0	10-07-15	INITIAL SUBMISSION WITH FLEXIBLE PAYMENT OPTION	

SCALE :
NOT TO SCALE

DESIGN :

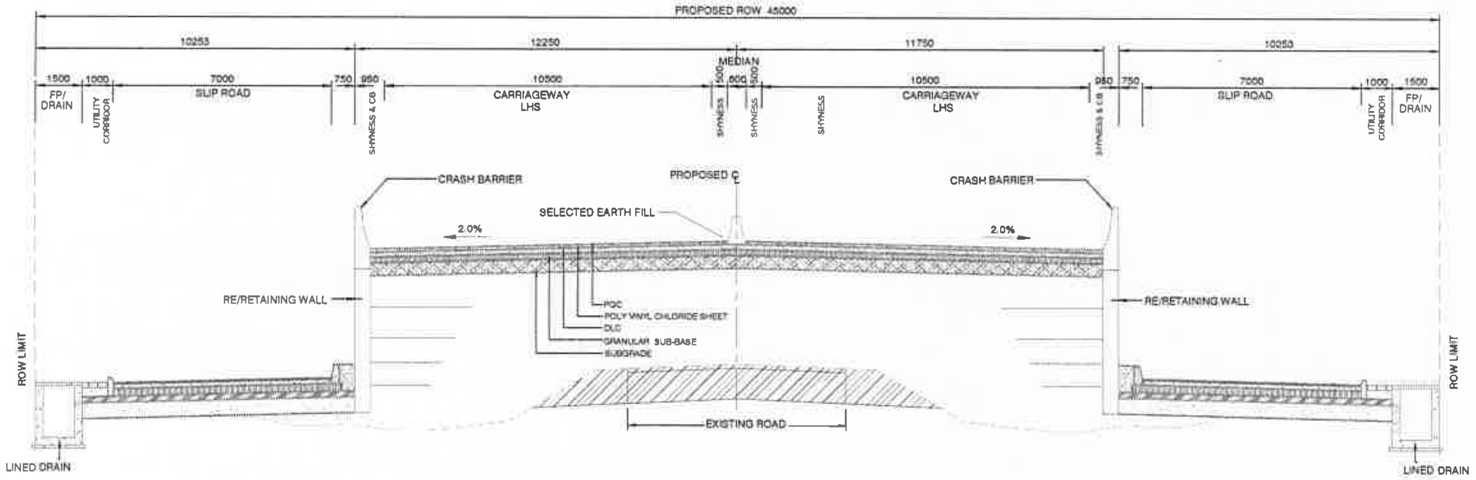
aarvee associates
architects engineers & consultants pvt.ltd.
Ravula Residency, Srinagar Colony Main Rd, Hyderabad-82, India
Tel: +91 -40-23737633; Fax: +91 -4023736277
e-mail: aarvee@aarvee.net; web:www.aarvee.net

CLIENT :

PROJECT :
FOUR LANNING OF EXISTING GOA/KARNATAKA
BORDER-PANAJI GOA SECTION OF NH-4A FROM KM.84/000
TO 153/075 IN THE STATE OF GOA ON BOT (TOLL) BASIS
UNDER NHDP-III (ANMOD TO PANAJI SECTION)

TITLE :
TYPICAL CROSS SECTIONS

DRG. NO. NH-4A / GOA / MISC / TCS / 02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12250
11750
10253
MEDIAN
1500
1000
7000
750
950
10500
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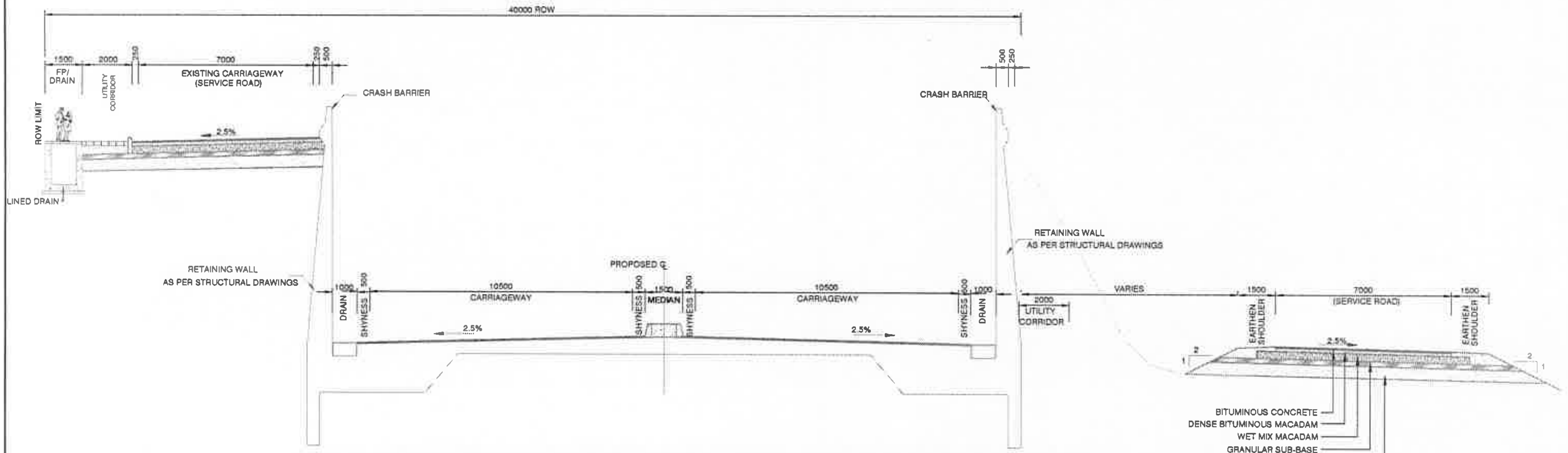
10500
950
750
7000
1000
1500
FP/ DRAIN
UTILITY CORRIDOR
SLIP ROAD
SHYNESS & CB
CARRIAGEWAY LHS
SHYNESS
SHYNESS
SHYNESS
CARRIAGEWAY LHS
SHYNESS & CB
SLIP ROAD
UTILITY CORRIDOR
FP/ DRAIN
CRASH BARRIER
PROPOSED ℄
CRASH BARRIER
SELECTED EARTH FILL
2.0%
2.0%
RE/RETAINING WALL
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
RE/RETAINING WALL
ROW LIMIT
ROW LIMIT
EXISTING ROAD
LINED DRAIN
LINED DRAIN

TYPE - VI : TYPICAL CROSS SECTION FOR APPROACHES TO 6-LANE PUP,LVUP, VUP & FLYOVER WITH SLIP ROADS ON BOTH SIDES (45m PROW)


40000 ROW
1500
2000
250
7000
250
500
FP/ DRAIN
UTILITY CORRIDOR
EXISTING CARRIAGEWAY (SERVICE ROAD)
500
250
CRASH BARRIER
CRASH BARRIER
ROW LIMIT
2.5%
LINED DRAIN
RETAINING WALL AS PER STRUCTURAL DRAWINGS
RETAINING WALL AS PER STRUCTURAL DRAWINGS
PROPOSED ℄
1000
500
10500
CARRIAGEWAY
500
1500
500
MEDIAN
10500
CARRIAGEWAY
500
1000
DRAIN
SHYNESS
SHYNESS
SHYNESS
SHYNESS
DRAIN
2000
UTILITY CORRIDOR
VARIES
1500
7000
(SERVICE ROAD)
1500
EARTHEN SHOULDER
EARTHEN SHOULDER
2.5%
2.5%
2.5%
2
1
2
1
BITUMINOUS CONCRETE
DENSE BITUMINOUS MACADAM
WET MIX MACADAM
GRANULAR SUB-BASE
COMPACTED SUBGRADE

TYPE - VII: TYPICAL CROSS SECTION FOR APPROACHES TO 6-LANE VOP WITH SLIP ROADS ON BOTH SIDES

NOTE :
ALL DIMENSIONS ARE IN MM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE
G.KRISHNA	M.P.SARMA	P. SRINIVASA RAO	S.S.REDDY	06-02-2016

REVISION NO	DATE	DESCRIPTION	REVISED BY
R1	10-08-15	WITH RIGID PAYMENT OPTION AS PER CLIENT	
R0	10-07-15	INITIAL SUBMISSION WITH FLEXIBLE PAYMENT OPTION	

SCALE :
NOT TO SCALE

DESIGN :
aarvee associates
architects engineers & consultants pvt.ltd.
Ravula Residency, Srinagar Colony Main Rd, Hyderabad-82, India
Tel: +91 -40-23737633; Fax: +91 -4023736277
e-mail: aarvee@aarvee.net; web:www.aarvee.net

CLIENT :

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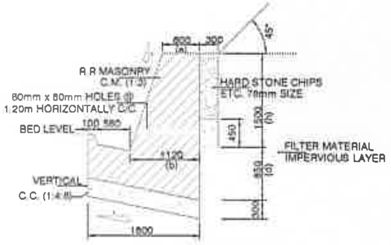
TO 153/075 IN THE STATE OF GOA ON BOT (TOLL) BASIS
UNDER NHDP-III (ANMOD TO PANAJI SECTION)

TITLE :
TYPICAL CROSS SECTIONS

DRG. NO. NH-4A / GOA / MISC / TCS / 03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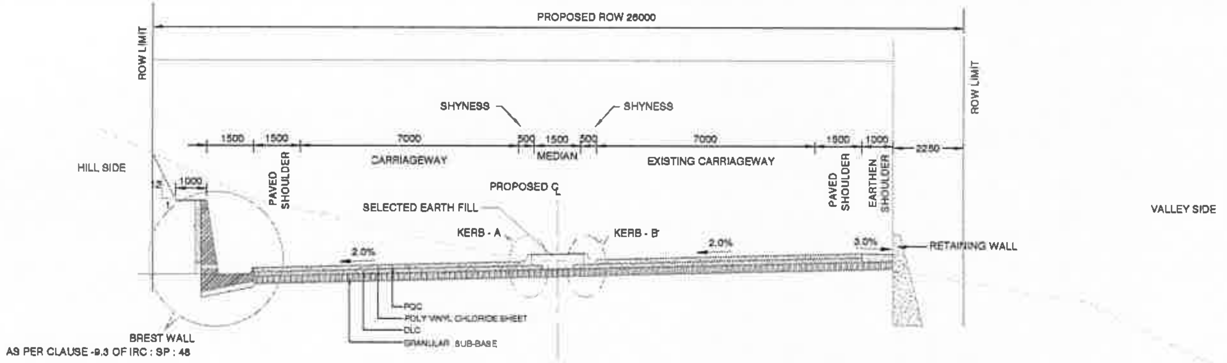
300
(a)
45°
R R MASONRY
C.M. (1:3)
HARD STONE CHIPS
ETC. 75mm SIZE
80mm x 80mm HOLES @
1.20m HORIZONTALLY C/C
BED LEVEL
100 580
450
1500
(h)
FILTER MATERIAL
IMPERVIOUS LAYER
1120
(b)
850
(d)
VERTICAL
C.C. (1:4:8)
300
1800

DETAILS OF BREST WALL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ROW LIMIT
ROW LIMIT
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SHYNESS
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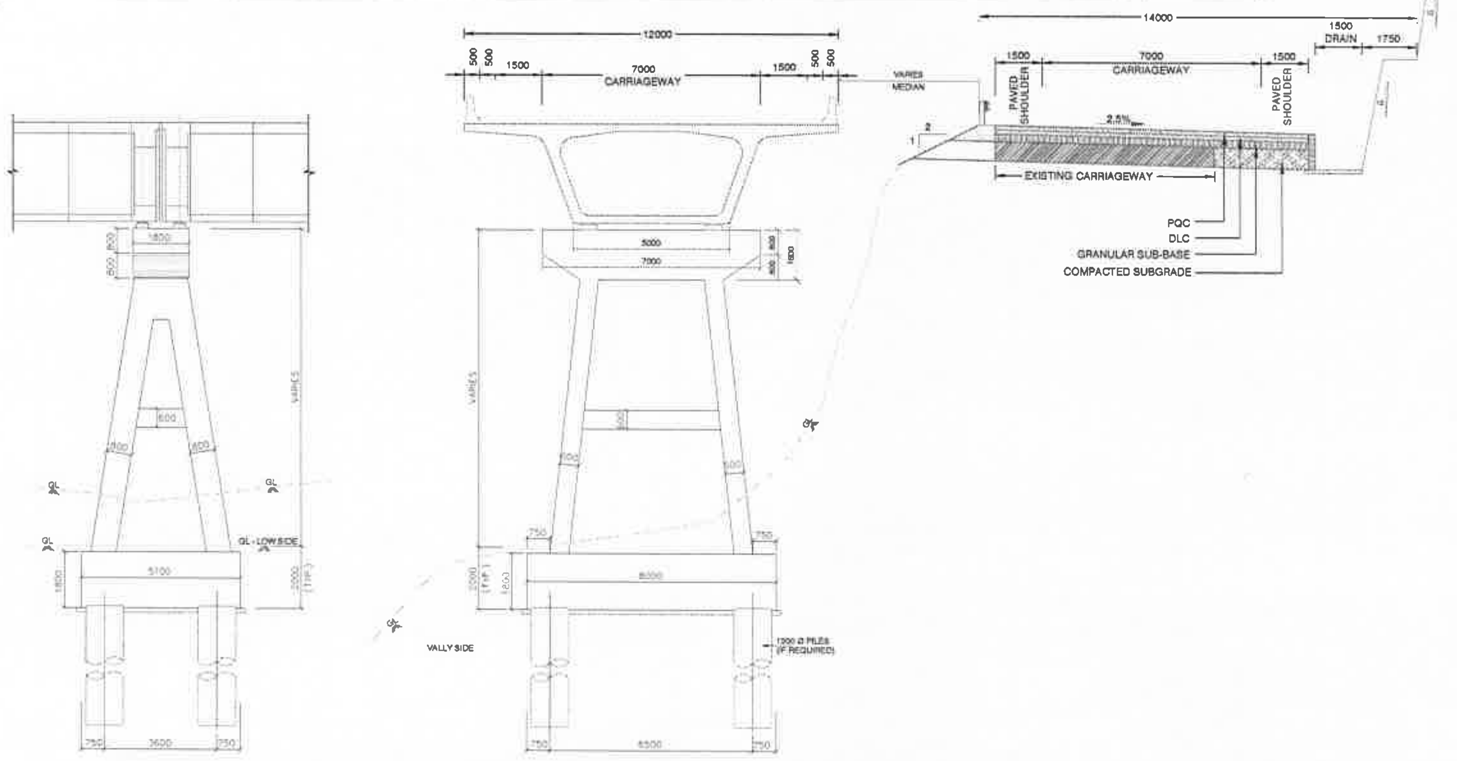
1500
7000
500
1500
500
7000
1500
1000
2250
CARRIAGEWAY
MEDIAN
EXISTING CARRIAGEWAY
HILL SIDE
PAVED SHOULDER
PAVED SHOULDER
EARTHEN SHOULDER
VALLEY SIDE
1000
PROPOSED C/L
SELECTED EARTH FILL
KERB - A
KERB - B
2.0%
2.0%
3.0%
RETAINING WALL
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
BREST WALL
AS PER CLAUSE -9.3 OF IRC : SP : 48

TYPE - VIII (a): TYPICAL CROSS SECTION FOR 4- LANE DIVIDED HIGHWAY AT SAME LEVEL WITH RAISED MEDIAN (GHAT POST)


12000
500
500
1500
7000
CARRIAGEWAY
1500
500
500
VARIES
MEDIAN
14000
1500
DRAIN
1750
1500
7000
CARRIAGEWAY
1500
PAVED SHOULDER
PAVED SHOULDER
2
1
2.5%
EXISTING CARRIAGEWAY
PQC
DLC
GRANULAR SUB-BASE
COMPACTED SUBGRADE
1800
5000
7000
1800
VARIES
VARIES
600
GL
GL
GL
GL - LOW SIDE
5100
1800
2000
8000
2000
1200 Ø PILES
(IF REQUIRED)
VALLY SIDE
750
3600
750
750
6500
750

PIER ELEVATION

PIER SECTIONAL ELEVATION

TYPE - VIII (b): TYPICAL CROSS SECTION FOR 4- LANE DIVIDED HIGHWAY WITH 2-LANE ELEVATED STRUCTURE (GHAT PORTION)

NOTE :
ALL DIMENSIONS ARE IN MM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE
G.KRISHNA	M.P.SARMA	P. SRINIVASA RAO	S.S.REDDY	08-02-2016

REVISION NO	DATE	DESCRIPTION	REVISED BY
R1	10-08-15	WITH RIGID PAYMENT OPTION AS PER CLIENT	
R0	10-07-15	INITIAL SUBMISSION WITH FLEXIBLE PAYMENT OPTION	

SCALE :
NOT TO SCALE

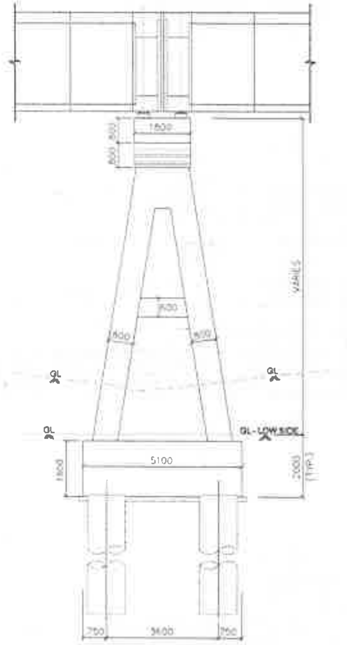
DESIGN :
aarvee associates
architects engineers & consultants pvt.ltd.
Ravula Residency, Srinagar Colony Main Rd, Hyderabad-82, India
Tel: +91 -40-23737633; Fax: +91 -4023736277
e-mail: aarvee@aarvee.net; web:www.aarvee.net

CLIENT :

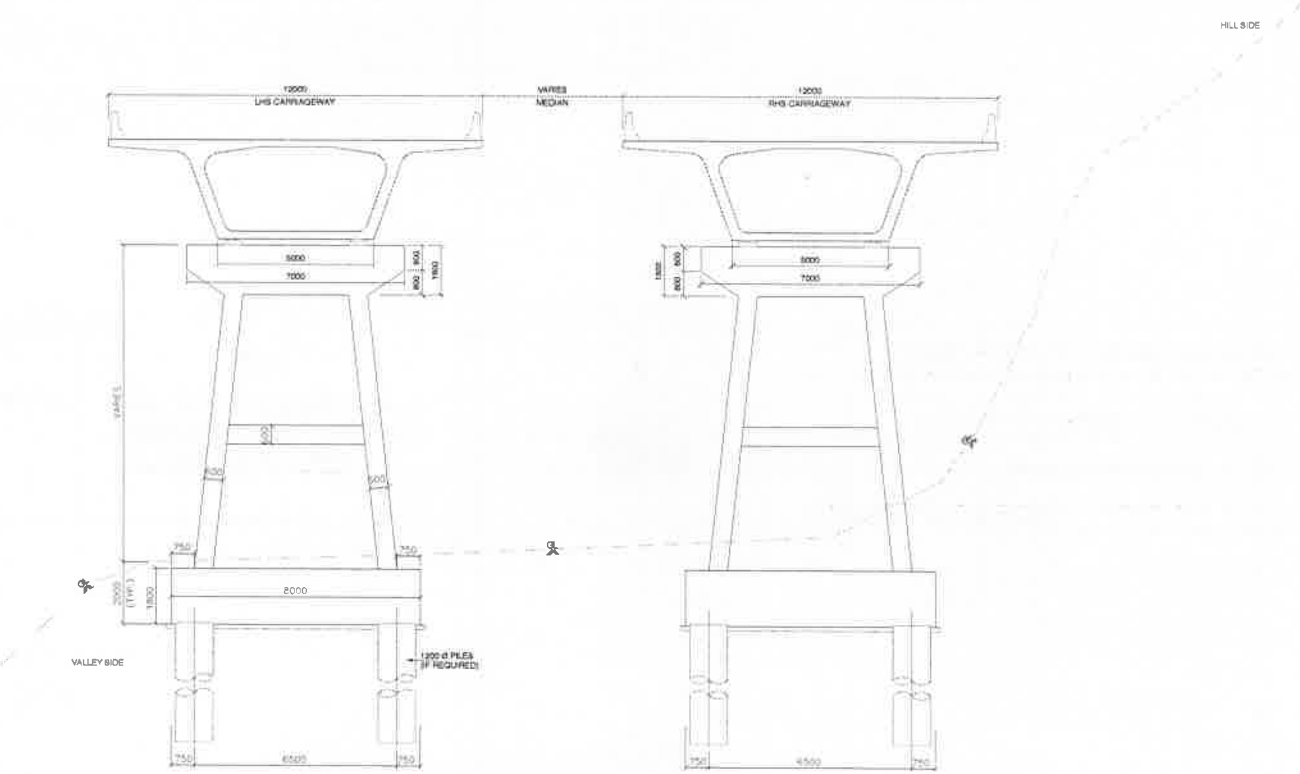
PROJECT :
FOUR LANNING OF EXISTING GOA/KARNATAKA
BORDER-PANAJI GOA SECTION OF NH-4A FROM KM.84/000
TO 153/075 IN THE STATE OF GOA ON BOT (TOLL) BASIS
UNDER NHDP-III (ANMOD TO PANAJI SECTION)

TITLE :
TYPICAL CROSS SECTIONS

DRG. NO. NH-4A / GOA / MISC / TCS / 04


1500
800
800
VARIES
600
600
600
GL
GL
GL
GL - LOW SIDE
5100
1800
2000 (TYP.)
750
3600
750

PIER ELEVATION


HILL SIDE
12000
LHS CARRIAGEWAY
VARIES
MEDIAN
12000
RHS CARRIAGEWAY
5000
7000
800
800
1600
VARIES
600
600
600
750
750
8000
2000 (TYP.)
1800
VALLEY SIDE
1200 Ø PILES (IF REQUIRED)
750
6500
750

TYPICAL 4-LANE CROSS SECTION

TYPE - VIII (c): TYPICAL CROSS SECTION FOR 4- LANE DIVIDED HIGHWAY WITH 4-LANE ELEVATED STRUCTURE (GHAT PORTION)

NOTE :
ALL DIMENSIONS ARE IN MM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE
G.KRISHNA	M.P.SARMA	P. SRINIVASA RAO	S.S.REDDY	06-02-2016

REVISION NO	DATE	DESCRIPTION	REVISED BY
R1	10-08-15	WITH RIGID PAYMENT OPTION AS PER CLIENT	
R0	10-07-15	INITIAL SUBMISSION WITH FLEXIBLE PAYMENT OPTION	

SCALE :
NOT TO SCALE

DESIGN :
aarvee associates
architects engineers & consultants pvt.ltd.
Ravula Residency, Srinagar Colony Main Rd, Hyderabad-82, India
Tel: +91 -40-23737633; Fax: +91 -4023736277
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TITLE :
TYPICAL CROSS SECTIONS

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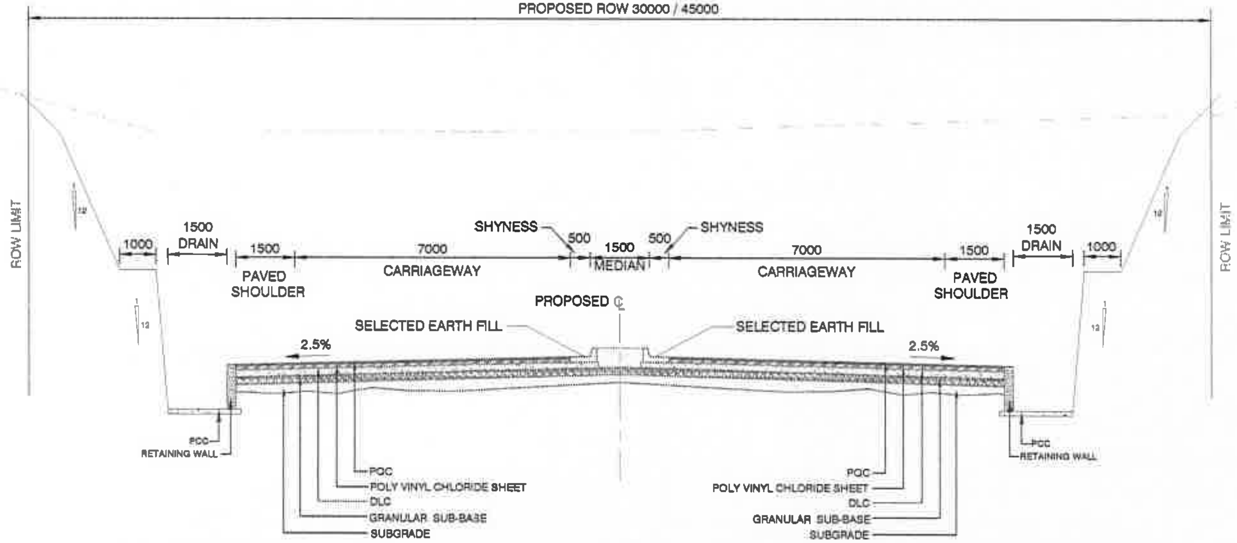
PROPOSED ROW 30000 / 45000
ROW LIMIT
ROW LIMIT
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12
12
12
1000
1500
DRAIN
1500
PAVED
SHOULDER
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SHYNESS
500
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MEDIAN
500
SHYNESS
7000
CARRIAGEWAY
1500
PAVED
SHOULDER
1500
DRAIN
1000
PROPOSED ℄
SELECTED EARTH FILL
SELECTED EARTH FILL
2.5%
2.5%
PCC
RETAINING WALL
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
PQC
POLY VINYL CHLORIDE SHEET
DLC
GRANULAR SUB-BASE
SUBGRADE
PCC
RETAINING WALL

TYPE - IX : TYPICAL CROSS SECTION FOR 4- LANE HIGHWAY AT CUT SECTION (GHAT PORTION)

NOTE :

ALL DIMENSIONS ARE IN MM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE
G.KRISHNA	M.P.SARMA	P. SRINIVASA RAO	S.S.REDDY	06-02-2016

REVISION NO	DATE	DESCRIPTION	REVISED BY
R1	10-08-15	WITH RIGID PAYMENT OPTION AS PER CLIENT	
R0	10-07-15	INITIAL SUBMISSION WITH FLEXIBLE PAYMENT OPTION	

SCALE :

NOT TO SCALE

DESIGN :

aarvee associates
architects engineers & consultants pvt.ltd.
Ravula Residency, Srinagar Colony Main Rd, Hyderabad-82, India
Tel: +91 -40-23737633; Fax: +91 -4023736277
e-mail: aarvee@aarvee.net; web:www.aarvee.net

CLIENT :

PROJECT :

FOUR LANNING OF EXISTING GOA/KARNATAKA BORDER-PANAJI GOA SECTION OF NH-4A FROM KM.84/000 TO 153/075 IN THE STATE OF GOA ON BOT (TOLL) BASIS UNDER NHDP-III (ANMOD TO PANAJI SECTION)

TITLE :

TYPICAL CROSS SECTIONS

DRG. NO. NH-4A / GOA / MISC / TCS / 06

PART – I

Proposal for Investigation and Survey in the National Park / Sanctuary

(Details to be provided by the Applicant)

1	Name of the Organization	Public Works Department
2	Aims and Objectives of the Proposed Project	1. Diversion of Forest land for four Laning of existing Goa/Karnataka Border-Panaji Goa Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa on BOT (Toll) basis under NHDP-III (Anmod to Panaji Section) The Project Aims to : (i) To meet the increased demands of the Traffic in the area. (ii) To reduce travel time fuel requirements and pollution.
3	Location and Map (1:50,000 scale) of the area duly authenticated by the competent authority to be investigated / surveyed	Original Map in SI sheet showing the location of the existing & proposed road passing through Reserve Forest area are enclosed
4	Whether investigation/Survey requires clearing of vegetation	No
5	If yes, please specify the extent (in Ha.)	31.015Ha.
6	Opinion of the Officer In Charge of the NP / WLS (Attach signed copy)	
7	Opinion of the Chief Wildlife Warden (Attach signed copy). The following be included in the opinion:	
ii.	Brief history of the protected area	Mollem wildlife Sanctuary was initially known as Mollem Game Sanctuary. It was declared a wildlife sanctuary in 1969 and renamed as Bhagwan Mahavir Sanctuary. The core area of the sanctuary covering 107 square kilometres (41sqmi) was notified as Mollem National Park in 1978. This sanctuary contains pristine vegetation classified as West Coast tropical evergreen forests, West coast semi evergreen forests and moist deciduous forests. The evergreen forests are mainly seen at higher altitudes and along the river banks. The predominant species are Terminalia, Lagerstroemia, Xylia and Dalbergia. The forest canopy is almost closed and the availability of grass is very limited. There are several perennial water sources in the sanctuary and the availability of water is not a limiting factor for wildlife.

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iii.	Current status of wildlife	The bio diversity in the Wild life Sanctuary as well as The National park are very rich and harbor several plant and animal species: **Plant Diversity**: Bhagwan Mahaveer National Park and surrounding area harbors 722 species of flowering plants in wild belonging to 492 genera and 122 families. 128 species of endemic plants either endemic to Western Ghats, Peninsular India occur in the National Park. Two recently described taxa viz. Glyphochloa veldkampii M. A. Fonseca et Janarth. and Amorphophallus commutatus (Schott) Engl. var. anmodensis Sivad. & Jaleel are strictly restricted to the National Park. Additionally 37 species of Pteridophytes are also found in the National Park **Mammals:** Wild mammals recorded in the sanctuary include: Blac Pnather, barking deer, Bengal Tiger, Leopard, Bonnet macaque, common langur, civet, flying squirrel, gaur, Malabar Gaint Squirrel, Mouse deer, Pangolin, Porcupine, Slender Loris, Sambar, Spotted Deer, Wild Boar and wild dog **Birds:** Popular birds which can be seen in the sanctuary include: Drango, Emerald Dove, Fairy Bluebird, Golden oriole , Greater Indian hornbill, Indian black woodpecker, Malabar gray horn bill, Malabar pied horn bill, Grey headed Myna, grey jungle fowl, large green bar bet, paradise flycatcher, racket tailed dragon, ruby-throat ed yellow bulbul (the Goa state bird), shrikes, three- toed kingfisher, Sri Lankan frog mouth, Wag tails. This sanctuary contains quite a few birds which are endemic to the Indian subcontinent, specifically southern India. **Butterflies:** Some of the many interesting butterfly specimens in the area are: blue Mormon, common Jezebel, common Mormon, common mime, plum Judy, common wanderer, crimson rose, lime butterfly, plani tiger, southern birdwing and taile jay. It also has endemic species like Malabar tree Nymph and Tamil yoeman. **Reptiles:** This sanctuary is famous for its snakes, particularly the King Cobra. Also here are: Bronze back tree snake, cat snake, hump nosed pit viper, Indian rock python, Malabar pit viper, rat snake, Russell's viper, Indian cobra and common krait.

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iii	Current status of pressures on protected areas.	The Wildlife Corridor of Bhgawan Mahavir wild life Sanctuary and the National Park is subjected to intense human and cattle pressure. The pressures being experienced are: ➢ Illicit felling of Teak other valuable trees and smuggling for commercial purpose. ➢ Removal of firewood, small timber and grass for local consumption. ➢ Cattle grazing by large cattle population which are both local and migratory. ➢ Collection of non-wood forest produces by local communities for their livelihood. ➢ Heavy flow of vehicular traffic throughout the day on the road passing through the Wild life Sanctuary and National Park creating disturbance and pollution.
iv	Projected impacts of projects on wildlife, habitat management and access / use of resource by various stakeholders.	The proposed project will have minimal affect on the wildlife habitat as the current project is only widening of the existing road to 4 lane standard. However, this user agency is ready to bear the cost towards the mitigation measures if any proposed by the Forest Department at the project cost.
v	Contiguous wildlife areas which would benefit wildlife if added to national park / sanctuary.	Not applicable
vi	Other areas in the State which have been recommended by State Government, Wildlife Institute of India, BNHS, SACON, IISC, IUCN or other expert body for inclusion in protected area network.	

The Executive Engineer
WD XV (NH), PWD
Ponda - Goa

EXECUTIVE ENGINEER
Works Division XV (NH)
P. W. D. PONDA - GOA

The Officer In Charge of the NP/WLS
Office Seal

Dy. Conservator of Forests
Wildlife & Eco-Tourism (North)
Panaji - Goa

The CWLW
Office Seal

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Annexure 17 (Extract)

No. PWD/WD XV(NH)/ASW/F.8031/2018-19/ 140
Government of Goa,
Office of the Executive Engineer,
Works Division XV(NH), PWD,
Ponda – Goa.

Dated : 03/07/2018

To,
The Dy.Conservator of Forests,
Wildlife & Eco-Tourism,
4th Floor, Junta House,
Panaji, Goa - 403001

Sub: Wild life Clearance for four laning of existing Goa / Karnataka border – Panaji - Goa section of NH-4A(New NH-748) from Km 84.133 to Km 97.000 in the state of Goa on BOT (Toll) basis under NHDP – III (Anmod to Mollem section) – **Submission of EIA Report – Reg..**

Ref: : 1. Proposal No.- FP/GA/ROAD/19978/2016

Sir,

With reference to the above cited proposal herewith we are submitting Seven copies of the Environmental Impact Assessment (EIA) report of the project road for your perusal and further necessary action.

12/07/18
Despatch Clerk
Office Of the
Dy. Conservator Of Forests
Wildlife & Eco - T... ...sm
Panaji

Yours faithfully,

Executive Engineer,
WD XV(NH), PWD,
Ponda, Goa.

Encl : Seven copies of the EIA report

Copy to: 1. The Executive Engineer, Div VII, Patto, Panaji-Goa
2. The Assistant Engineer, SD-I, WD XV (NH), PWD, Ponda - Goa
3. M/s Aarvee Associates, Architects Engineers & Consultants Pvt. Ltd., Hyderabad

CHAPTER -04

ANALYSIS OF ALTERNATIVES

4.0 ANALYSIS OF ALTERNATIVES

Proposed project is not having any bypasses except for realignments between the stretch from Km 84.000 to Km 96.000 (Section 1). Thorough analysis of various alternatives for realignment & widening of the project road is evaluated considering various features such as Techno-economic feasibility, Geometric alignment, Construction time, Environment & social aspects etc. The alternative analysis is mainly aimed to mitigate the adverse social & environmental impacts in the project and make technically feasible, economic & financially viable and social & environmentally acceptable alternative.

Map studies and detailed investigations of the influence area were carried out for identifying the existing road network, land use pattern and industrial activities along the project corridor. Different alignment options are considered, evaluated and recommendations are presented in Table – 4.1. The improvement scheme of the options are mentioned below. For the purpose of horizontal design, the project road is divided into various sections out of which Section – I needs realignment.

Section – I: Km 84.000 to 96.000 (Mountainous/Steep terrain)

The Project Highway starts with mountainous/steep terrain form at Km 84+000 near Goa/Karnataka border. Existing alignment has substandard horizontal as well as vertical geometry due to steep terrain from Km 84.000 to Km 94.000. There are hairpin bends, where the speed is about 20 kmph.

The consultants have studied in details for improving the horizontal geometry of existing 2 lane carriageway as well as new 2 lane carriageway in consultation with the PWD, Goa. The stretch under consideration is passing through wild life sanctuary. Hence, following options were studied for improvement proposal.

Option – 1: Widening on hill side

Hard rock outcrop is visible in this stretch. For widening new carriageway on hill side requires blasting operations and frequent closing of live traffic. Further, blasting may pose sever impact on wild life in surrounding area.

There are locations, where landslides also observed in this stretch. Widening on hill side may result in heavy breast walls.

Option – 2: Widening on Valley side without improving the existing

Widening on valley side do not requires closing live traffic. It will have minimum impact on wild life, since it do not requires any blasting operations.

Widening new carriageway on valley side requires construction of either retaining wall or via-duct to support new carriageway.

To have minimum impact on local environment and ease of construction, the consultants have proposed via-duct for the new carriageway. It be independent of existing carriageway (no common median) and will comply with geometric standards stipulated in 4 laning manual.

Option – 3: Widening on Valley side with realignments

Cost of viaduct is directly proportional to the length of via-duct. The consultants have studied in detail for feasibility of shortening the length of via-duct within permissible gradients. After detailed study at site, based on the topographical survey and preliminary design of vertical alignment, it was identified that from Km 89 to Km 92 can be connected with smooth geometry within permissible gradients. Based on above three options, Option 3 is most feasible, even though the construction cost is higher than the options 1&2. Merits and demerits for the proposed options of re-alignment are given in the table no. 4.1.

Table – 4.1: Merits and Demerits

Description	Option-1	Option-2	Option-3
Traffic Management	Road closure during blasting and removal of debris operations	Road closure while forming ramps on the valley side	Road closure while forming ramps on the valley side
Stability issues	It would not be possible to cut hill to the required slope since that would disturb road on the hill side. Thus, adequate slope stabilizing structures are to be provided to prevent landslides.	Existing slopes on hill side are to be stabilized. Construction of viaduct may not involve any stability related concerns.	Existing slopes on hill side are to be stabilized. Construction of viaduct may not involve any stability related concerns

Description	Option-1	Option-2	Option-3
Structures involved	Breast Walls, Soil Nails etc. may be required for ensuring slope.	Viaduct structure; earth retaining structures	Viaduct structure; earth retaining structures
Environmental & Social issues	This option would involve disturbing of hill slopes in the Bhagwan Mahaveer wild life sanctuary. Complete origin forest will be disturbed During construction phase, silting is lesser compared to other two options Getting Forest clearances from MoEF & CC and Wildlife clearance from National Board of Wildlife (NBWL), New Delhi. No major habitation is existing in the proposed alignment	This option would involve disturbing of fringes of hill slopes in the Bhagwan Mahaveer wild life sanctuary. Partially origin forest will be disturbed During construction phase, Erosion will take place and result in silting of the streams Getting Forest clearances from MoEF & CC and Wildlife clearance from National Board of Wildlife (NBWL), New Delhi. No major habitation is existing in the proposed alignment	This option would involve disturbing of fringes of hill slopes in the Bhagwan Mahaveer wild life sanctuary. Partially origin forest will be disturbed During construction phase, less Erosion will take place and result in silting of the streams Getting Forest clearances from MoEF & CC and Wildlife clearance from National Board of Wildlife (NBWL), New Delhi. No major habitation is existing in the proposed alignment
Extra Forest Land to be acquired	26.4 hectares. This option would involve disturbing of hill as the complete widening on hill side and the entire land will be occupied. In this option revegetation of forest cover will not be possible as additional 2 lanes will land on hills.	26.6 hectares. This option would involve insignificant disturbance of hill as the new 2 lane will come on valley side and the land required is only at pier locations. In this option the above land is utilized for construction project. After the construction, the vegetation of forest cover will be reinstated except at pier locations which is the nominal area.	25.4 hectares. This option would involve insignificant disturbance of hill as the new 2 lane and some existing 2 lane realignments will come on valley side and the land required is only at pier locations. In this option the above land is utilized for construction project. After the construction, the vegetation of forest cover will be reinstated except at pier locations which is the nominal area.
Geometric alignment	Will follow the existing alignment; Substandard curves will remain.	Will follow the existing alignment; Substandard curves will remain.	Two sharp sub-standard curves will be improved.

Description	Option-1	Option-2	Option-3
Construction time	Less compared to other two options	Viaduct formation will be time consuming.	Slightly more time compared to option 2 since substructure height will be higher.
Cost in Crores	Rs. 272 Cr.	Rs. 1093 Cr.	Rs 1126 Cr.

Recommended Option

Since, the project stretch falls in wild life sanctuary, Option-3 which involves minimum acquisition of the forest land falling in wild life sanctuary and improvement of the existing alignment to the proper geometric standards is recommended.

The alignment options were discussed with the competent authority (Ministry) in the presence of PWD officials at Delhi on 02/02/2016. The alignment Option-3 is approved by Authority vide letter no. RW/NH/37015/14/2016/NHDP-IV A, dated 26.02.2016.

5.8.1 Forests, Biosphere and Sanctuary

Forests in the Study Area:

A major section of the project road from km 84.000 to km 96.000 passes through part of Western Ghats, which has been considered as one of the richest reservoirs of the bio-diversity and termed as 'Biodiversity hotspot'. (Hot spots are areas that are extremely rich in species, have high endemism, and are under constant threat). Floristically Western Ghats bio-region is one of the richest harbouring with almost 3500 species of flowering plants (27 percent of the flowering plants in India). The ten dominant natural orders of plants are Gramineae, Leguminosae, Acanthaceae, Orchidaceae, Compositae, Euphorbiaceae, Rubiaceae, Asclepiadaceae, Geraniaceae and Labiatae. The genera found in the region with more than 15 species each are Crotaleria, Impatiems, Diospyros, Ipomoea, Eugenia, Strobilanthus, Ficus, Desmodium, Habenaria, Grewia and Osbechia. There are 58 endemic genera mostly confined to Western Ghats of which 47 are monotypic. Gramineae (Poaceae) has the highest number of endemic genera and the genus Nilgirianthus has the maximum number (20) of endemic species. Tree genera endemic to the Western Ghats are Blepharisternma, Erinocarpus, Meteromyrtus, Ostonephelium, Poeciloneuron and Pseudoglochidion. Other endemic genera are Adenoon, Griffithella, Willisia, Meineckia, Baeolepis, Nanothamnus, Wagarea, Campbellia and Calacanthus. In addition, there are 6 genera and 17 species belonging to Bambusae of which 6 are confined to Western Ghats. Of 25 species of Dalbergia found in India, 22 species and 1 variety are from the Western Ghats. There are also 84 species and two variants of endemic orchids belonging to 30 genera (these genera are endemic). Of the known orchids of Indian peninsula, 37 percent are endemic to the Western Ghats region and of those 15 species are endangered.

Diversity and endemism are also seen in fauna of Western Ghats. There are 48 genera of mammals, 275 genera of birds (with 28 endemic forms), 60 genera of reptiles with 7 Hoplodactyles, Salea, Pseudoplecturus, Pleucturus, Melanophidium, Platylecturus and Xylophis have been recorded. The order Salientia is the best represented amphibian group in India. The genus Rana within this order with 35 species reported from India is mainly found in the peninsula, with 14 species endemic to the Western Ghats. Family Rhacophoridae with two genera and nine species occurring in the Western Ghats, out of the 10 species known from India, family Bufonidae has three genera. The genus Nectophryne has endemic N. tuberculosa in the Western Ghats. In the genus Bufo, out of fifteen species, seven are endemic to the Western Ghats.

Bhagwan Mahaveer Sanctuary and National Park:

This protected area located in the Western Ghats of South India, in Sanguem taluk, Goa along the eastern border with Karnataka with an area of 240 sq.km Initially, it was notified as a Sanctuary (Molem Wildlife Sanctuary) in 1967. Subsequently an area of 107 sq.km. of the said Sanctuary was notified as the Molem National Park in 1978. Later, the name was changed to Bhagwan Mahaveer Wildlife Sanctuary and National Park. It is located between 15°15"30' to 15°29"30' N and 74°10"15' to 74°20"15' E.

The area is situated near the town of Molem, 57 kilometres east of Panaji, the state capital of Goa. National Highway 4A divides it into two parts and the Mormugao - Londa railway line passes through the area.

The sanctuary is classified as West Coast tropical evergreen forests, West Coast semi-evergreen forests and moist deciduous forest. The sanctuary's setting in the foothills of the Western Ghats is wonderful and the countryside is one of the most peaceful across in Goa. The sanctuary is rich in wildlife and paradise for bird watchers.

The predominant wild mammals in the sanctuary are tiger, leopard black panther, flying squirrel, barking deer, spotted deer common langur, gaur, wild dog, sambar, porcupine and mouse deer etc.,The Popular birds are greater Indian hornbill, large green barbet, grey jungle fowl, Indian black woodpecker, grey-headed myna, Malabar grey hornbill and the Goa state bird Yellow-throated bulbul etc.,

5.8.2 Flora and Fauna in the Study Area

i) Methodology

A list of all macroscopic plants is prepared based on extensive field survey covering the entire project site or core area. Quantitative data on frequency, density, dominance as percent cover etc are noted based on quadrats of 10 x 10 m in case of trees, 2 x 5 m in case of shrubs and 1 x 1 m in case of herbs. Cover is usually estimated by a modified line intercept method where the area occupied by each species is estimated as percentage of total length of a line transect either intercepted or over lain or under laid along with the transect.

Data from field study is recorded in the following Tables:

List of plant species found in the Project area		
Name of plant species	Local name or common name (if any)	Family

Frequency, density and dominance of different species of plants (separate Table for each quadtat and transect will be maintained)			
Name of plant species	Frequency (recorded as + or – only)	Density as number per quadrat	% cover based on line transects

Relative frequency (R.F), relative density (R.D), relative dominance (R.dom) and Importance value indices (IVI) of different species							
Name of plant species	Frequency		Density		Dominance		IVI
	%	R.F	%	R.D	%	R.Dom	

Based on the IVI values, Shannon –Wiener Indices of Diversity was calculated.

Shannon – Wiener Indices of Diversity was calculated as the sum of p^i value of each species multiplied by ln of p^i using the following equation:

$$H' = -\sum_{i=1}^{S} p_i \ln p_i$$

Where, p^i is calculated by dividing the IVI of a species by the total IVI of all species in the sampled community.

ii) Vegetation Sampling Instructions followed:

Subject to accessibility, desirability and feasibility, restricted random sampling techniques are used where the number of quadrates in each type of vegetation shall be proportionate to the area under its cover. Non destructive sampling techniques are used. Stratified sampling is used where trees, shrubs and herbs are sampled separately. However, suitable modifications have been made depending on the situation and circumstances. These sampling techniques are suitable if the majority of the sampling area is under natural communities.

iii) Field Study on Flora

The structure and type of vegetation depends on climatic conditions and physiography of an area. Climate of the study area is much suited for the variety of vegetation because of annual averages more than 1000 mm. A floral enlistment of trees, shrub & herbs with their scientific names, common names and the family to which they belong are presented in a tabular format. The floral species and their status with reference to IUCN Red data book has been placed in the Table -5.15. The contents of this subsection are based primarily on reconnaissance survey carried out by the team of AARVEE associates & available information collected from secondary data. A total 12 random line transects were laid to study the flora along the study area with a length of 5 Km each covering entire project stretch. As per the vegetation analysis to determine the species density, abundance and dominance, the plant species Tectona grandis known to be dominating over other species with a Shannon wiener index of 2.6.

Table -5.15: List of Floral Species Along With Family Names

S. No.	Local name	Botanical name	Family	Category as per IUCN
1	Khair	Acacia catachu	Mimosaceae	Not Assessed
2	Hewar	Acacia leucocepholea	Fabaceae	Not Assessed
3	Shembi	Acacia pennata	Mimosaceae	Not Assessed
4	Sapota	Achras zapota	Sapotaceae	Not Assessed
5	Asan	Terminalia elliptica	Combretaceae	Not assessed
6	Saguvan	Tectona grandis	Lamiaceae	**Not assessed**
7	Sal	Shorea robusta	Dipterocarpaceae	Threatened Species
8	Caju	Anacardium occidentale	Anacardiaceae	Not assessed
9	Ambo	Mangifera indica	Anacardiaceae	Data Deficient
10	Asoka	Saraca indica	Fabaceae	Not assessed
11	Bayo	Cassia fistula	Fabaceae	Not assessed
12	Apto	Bahuhinia racemosa	Fabaceae	Not assessed
13	Tamas	Borassus flabellifer	Palmae	Not assessed
14	Awala	Phyllanthus emblica	Phyllanthaceae	Not assessed
15	Boram	Zizuphus mauriliana	Rhamnaceae	Not assessed
16	Char	Buchanania lanzan	Anacardiaceae	Not assessed
17	Ambado	Spondia mangifera	Anacardiaceae	Not assessed
18	Bavalgi	Vitex altissima	Lamiaceae	Not assessed
19	Goting	Terminalia bellerica	Combretaceae	Not assessed
20	Bhedas	Syzgium caryophyllatum	Myrtaceae	Not assessed
21	Gulmohar	Delonix regia	Fabaceae	Least Concern
22	Bhirand	Garcinia indica	Clusiaceae	Vulnerable
23	Chandado	Macaranga peltata	Euphorbiaceae	Not assessed
24	Goinda	Diospyros motana	Ebenaceae	Not assessed

S. No.	Local name	Botanical name	Family	Category as per IUCN
25	Karanji	Pongamia pinnata	Fabaceae	Least Concern
26	Karo	Strychonos nux-vomica	Loganiaceae	Not assessed
27	Datura	Datura stramonium	Solanaceae	Not assessed
28	Jamun	Syzgium cumini	Myrtaceae	Not assessed
29	Kamdeli	Rhizophora mucoronata	Rhizophoraceae	Not assessed
30	Kusum	Schleichera Oleosa	Sapindaceae	Not assessed
31	Kakad	Garunga pinnata	Burseraceae	Not assessed
32	Kala Siras	Albizzia odoratissima	Fabaceae	Not assessed
33	Vad	Ficus bengalensis	Moraceae	Not assessed
34	Hirda	Terminalia chebula	Combretaceae	Not assessed
35	Palas	Butea monosperma	Fabaceae	Not assessed
36	Taman	Lagerstoemia speciosa	Lythraceae	Not assessed
37	Zamba	Xylia xylocarpa	Fabaceae	Not assessed
38	Pipal	Ficus religiosa	Moraceae	Not assessed
39	Sissum	Dalbergia latifolia	Fabaceae	Vulnerable
40	Siras	Albizzia lebbek	Fabaceae	Not assessed
41	Sitaphal	Annona squamosa	Annonaceae	Not assessed
42	Limb	Azadirachta indica	Meliaceae	Not assessed
43	Gul Mohwa	Bassia latifolia	Sapotaceae	Not assessed
44	Chillar	Caesalpinia sepiaria	Caesalpinaceae	Not assessed
45	Papaya	Carica papaya	Caricaceae	Not assessed
46	Casuarina	Causuarina equisetifolia	Casuarinaceae	Not assessed
47	Coconut	Cocos nucifera	Palmae	Not assessed
48	White silk cotton tree	Ceiba pentandra	Bombaceae	Not assessed
49	Downy	Datura metel	Solanaceae	Not assessed
50	Eucalyptus	Eucalyptus territiconis	Myrtaceae	Not assessed
51	Ashvath	Ficus religiosa	Moraceae	Not assessed
52	Kurule	Garuga pinnata	Burseraceae	Not assessed
53	Haldu	Haldinia cordifolia	Rubiaceae	Not assessed
54	Papra	Holoptelea integrifolia	Ulmaceae	Not assessed
55	Kurat	Ixora arborea	Rubiaceae	Not assessed
56	Shirali	Microcos paniculatus	Tiliaceae	Not assessed
57	Vilayathi	Pithecelobium dulce	Mimosaceae	Not assessed

iv) Survey of Fauna of the study area:

Since the animals with the exception of a few sedentary species and a few residents move from place to place either for feeding or breeding or for shelter etc, it may not be possible to prepare separate lists of fauna for core and buffer zones. The mere absence of a species at the time of sampling does not rule out its presence. In order to overcome such problems, a list based on both primary survey and secondary data is prepared. The primary survey takes in to account both direct evidence and indirect evidence including the circumstantial evidence. All relevant scientific documents such as the scientific publications, documents and reports are a good source of information provided they are site, area and location specific. Recent reports were taken into considering the species, and in the absence of data and information, reports of eye witness accounts and information from local non governmental organizations are considered. Due attention is paid to rare or endangered or endemic or threatened (REET) species. In order to find out whether a species comes under any of the REET categories, references are made to IUCN Red Data, Indian Wildlife (Protection) Act 1972 and its amendments thereof, Botanical survey of India (BSI) and Zoological Survey of India (ZSI).

v) Faunal Diversity and impact of the project:

The field survey and local consultation with the local villagers a faunal enlisting of birds & mammals with their scientific names and common names is presented. The list of faunal species, the family they belong to and the status of the faunal species with reference to the IUCN red data book and with reference to the Wildlife act 1972 schedules were placed in Table -5.16. The table depicts the animals and birds found in the study area and its adjoining area. However, the faunal species are not having any endangered or extinct species and will not have any adverse impact due to the construction activity in the core Project area. Even after construction phase, the faunal species will not get affected and rather they may increase in number because of the road structures as the project will not obstruct their movement rather can create new habitats for them.

Table -5.16: List of Faunal Species Along With Family Names And Status As Per Iucn And Wildlife Act Schedules in Goa

S. No.	Local name	Scientific name	Family	Status as per Wild life act Schedule	Category as per IUCN
1	Vandor	Presbytis entellus	Cercopithecidae	II	Not assessed
2	Indian robin	Saxicoloides fulicata	Muscicapidae	-	Least concerned
3	Katanoor	Viverricula indica	Viverridae	-	Least Concern
4	Colo	Canisaureus	Canidae	-	Not assessed
5	Mongus	Herpestes edwardsi	Herpestidae	-	Least Concern
6	Bibtto Vag	Panthera pardus	Felidae	I	Vulnerable
7	Khadi Khar	Funambulus palmarum	Sciuridae	-	Least Concern
8	Ran Dukar	Sus scrofa	Suidae	III	Least Concern
9	Baul Manzor	Felis chaus	Felidae	II	Least Concern
10	Vagul	Rousettus leshenaulti	Pteropodidae	-	Not assessed

S. No.	Local name	Scientific name	Family	Status as per Wild life act Schedule	Category as per IUCN
11	Bhalu	Melursus ursinus	Ursidae	II	Vulnerable
12	Shenkaro	Ratufa indica	Sciuridae	II	Least Concern
13	Bhenkaro	Muntiacus muntjak	Cervidae	III	Not assessed
14	Sambhar	Cervus unicolor	Cervidae	III	Vulnerable
15	Koli Undir	Bandicot Indica	Muridae	-	Not assessed
16	Vagati	Felis bengalensis	Felidae	-	Not assessed
17	Pak Mazor	Petaurista petaurista	Sciuridae	-	Least Concern

Measures to compensate removed plants during construction

There are 20,000 nos. of trees needs to be planted along the project corridor. The type of plants to be removed are Asan, Rosewood, Bamboo, Khair, Mango, Neem, Cashew, Casuearina, Betel nuts, Coconut and Eucalyptus. The short-term impact due to felling of trees will be compensated in long term through the proposed plantation programme. The local plant varieties will be identified and the same will be planted along the aqueduct and surrounding areas.

Mitigation Measures:

- Avenue Plantation programme shall be promptly adopted to restore and further enrich the loss of vegetation.
- Avenue Plantation with an appropriate mix of indigenous and specially suited species shall be carried out along the corridor. The number of plants proposed to be planted is 20,000 nos.
- Local plant varieties especially, soil bounding species will be planted near to the constructed aqueduct and also in the surroundings in order to hold the soil tightly.

5.8.4 Study of Aquatic flora and Fauna:

The Phytoplankton, Zooplankton, Macrobenthos, Nekton, Macrofauna, Mangroves and Angiosperms are present in the aquatic flora in the study area. Predominant Mangroves identified in the study area are Rhizophora mucronata, Rhizophora apiculata, Avicennia officinalis, Avicennia marina, Avicennia alba, Sonneratia alba, Sonneratia caseolaris, Ceriops tagal, Aegiceras corniculatum, Derris heterophylla etc. Figure 5.24 is showing the Mangroves near River Mandovi Estuary.

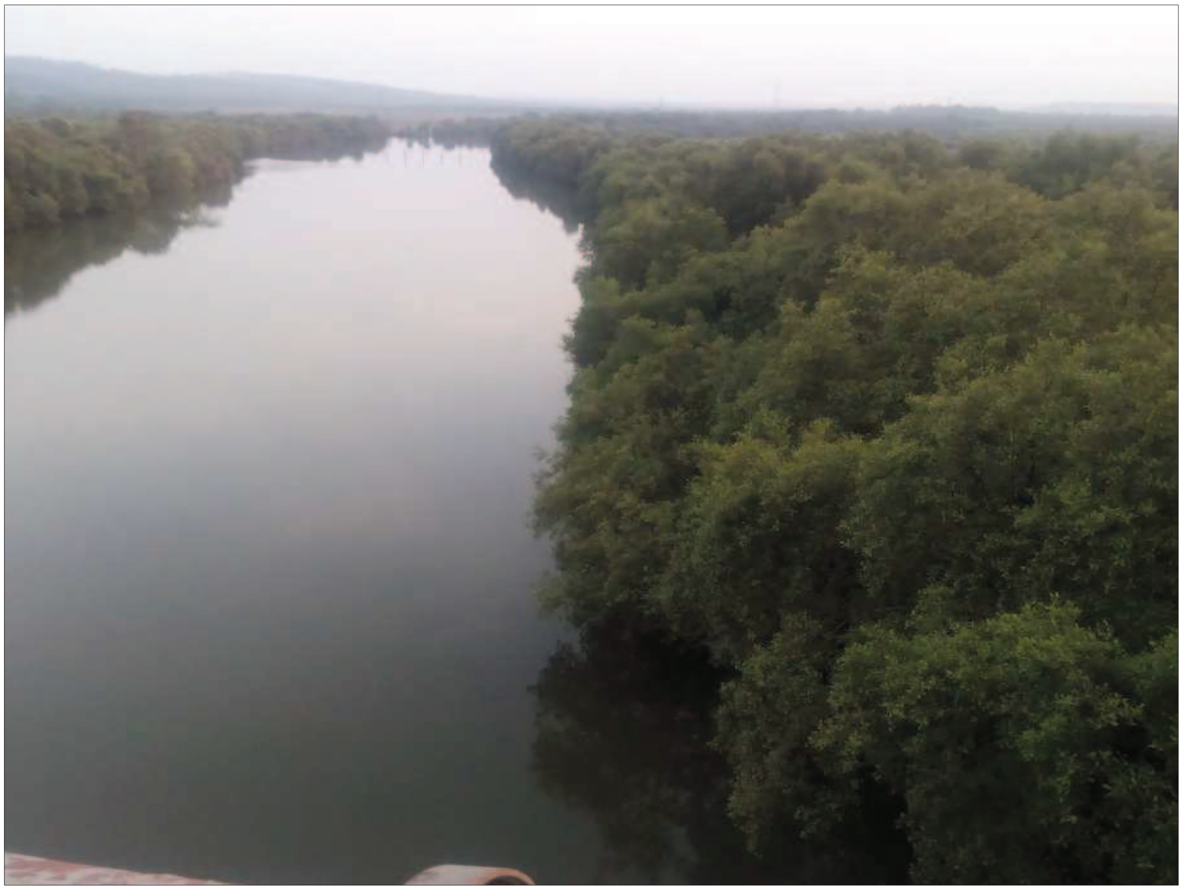

Figure 5.24: Mangroves near River Mandovi Estuary

Aquatic fauna

Crocodylus palustris, Lepidochelyes olivacea, Calotes rouxii, Hoplobatrachus tigerinus, Rana malabarica, Melanochelys trijuga are present in the aquatic fauna in the study area.

5.9 Socio-economic Status (According to 2011 Census)

Population Size	1458545
Population size (Males)	739140
Population size (Females)	719405
Population size (Rural)	551731
Population size (Urban)	906814
Population size (Rural Males)	275436
Population size (Rural Females)	276295
Population size (Urban Males)	463704
Population size (Urban Females)	443110
Population density (Total, Person per sq km)	394
Sex Ratio (Females per 1000 males)	973

plantation in the median is Bougainvillea, Thevita peruviana (Be still tree), Nerium Oleander (Ganneru dwarf) etc.

Mitigation Measures for Bhagwan Mahaveer Wildlife Sanctuary during Construction Phase:

- ➔ Awareness programmes shall be conducted in the command area as well as construction labours in the form of seminars/workshops/exhibitions. An amount of Rs.20.0 lakhs is made in the EMP for this purpose.
- ➔ Define the construction boundary near Sanctuary peripheral area, and shall be provided with hoarding/notice boards/sign boards for the restriction of movement of construction labours/local public.
- ➔ Construction camps shall be put 10 Kms away from the Bhagwan Mahaveer Wildlife Sanctuary boundaries.
- ➔ Mitigation of man versus animal conflict is going to be the important issue that will threaten wildlife in Sanctuary area
- ➔ The construction activity across the reserve forests shall be taken up during day time only.
- ➔ Project Authorities shall make periodic visits to meet Forest authorities to obtain their approval/suggestions during construction and operation of the project.
- ➔ Necessary noise mitigation measures as mentioned above shall be strictly implemented.
- ➔ Vehicles under PUC checkup only be used during construction activities to minimize air emissions.

II) Fauna

Terrestrial Fauna:

During the construction, no impact on the wildlife is anticipated.

Aquatic Fauna:

There are 9 nos. of rivers / lakes / ponds identified in the project stretch of 500m radius, most of them are remain dry during non-monsoon months.

Increasing sediment load to the recipient water bodies i.e. ponds and rivers will restrict the penetration of solar energy in the water body. This will affect photosynthesis of the aquatic flora, which in turn will have adverse impacts on the aquatic fauna. Since most of the water bodies remain dry during the non-monsoon months, this impact will be negligible. But, the implementation of the following measures will help to avoid soil erosion and further minimize the impacts of the aquatic fauna.

Mitigation Measures:

- Filling up of ponds wherever required shall be done during the non-monsoon months.
- Construction of bridges and culverts shall be accomplished during the non-monsoon periods.
- Filling up of ponds will be resorted only after exhausting all other options.
- The direct discharge of oil and chemical spills to the water bodies shall be avoided.

6.3.10 Impacts on Human Use Values

i) Land Use

Widening & strengthening of the existing highway to 4/6-laning with National highway norms may lead to a change in the land use pattern of areas adjacent to the road. The existing land adjacent to the road at present is mostly of barren, agricultural use and forest area and grazing use which needs to be acquired for widening of the road.

The project corridor is a mix of hilly, highly rolling and plain terrain and thus, no disfiguration of land is envisaged due to construction activities except for the opening up of borrow pits. The borrow pit locations have already been identified and will be restricted to those areas only.

Mitigation Measures:

- Construction activities shall be limited to the corridor only.
- Care shall be taken to ensure that the construction workers camp does not disturb the surrounding land use.
- Existing access/ entrances to the highway shall be duly maintained.
- The realignment alternatives that are best from Engineering, Environmental and Social aspects are selected for this project.

ii) Flood Characteristics

The project stretch comprises forty two (31) cross drainage existing structures and eight (11) more are proposed to meet the demand. There are two (2) major bridges are existing and two (2) more major bridges are proposed. There are eight (8) minor bridges are existing and one (1) more bridge is proposed. The project stretch are designed for above HFL hence, the flooding in the area can be avoided. The flood characteristics of the project area are given project description. In the proposed

Annexure 18

Report Part-III

Form for seeking recommendation of Standing Committee of NBWL/SBWL to be filled by Wildlife Warden (Part-III)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes

(ii). Proposal No. : FP/GA/ROAD/19978/2016

(iii). Name of Project: NH-4A, WLS/NP/RF Goa

(iv). Short narrative of the Project : Four Laning of existing Goa/Karnataka Border-Mollem Section of NH-4A from Km 84.133 to Km 97.000 in the state of Goa

(v). State : Goa

(vi). Category of the Proposal : Road

(vii). Shape of project land : Linear

(viii). Estimated cost of the Project(Rupees in lacs) : 59400

(ix). Total period for which clearance is required (in years): 100

(x). Category of Protected Area: Wildlife Sanctuaries,National Park

(xi). Total Project Area(in ha.): 33.972

(xii). Area under Protected Area (in ha.): 31.015

(xiii). Area under Non-Protected Area (in ha.): 2.957

A-2. Alternative details uploaded by User Agency

Alternative details uploaded by User Agency	
No	**Up-gradation of existing road**

A-3. Bio diversity Impact Assessment Report uploaded by User Agency

(i).Bio diversity Impact Assessment Report uploaded by User Agency: :NA

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....
APIO / PIO

A-4. Details of division

Division 1. : Wildlife - North

(i). Total Area of the Protected Area (in ha.): 31.0150

(ii). Upload copy of Conservation value of the Protected area: Annexure Survey of India Toposheet

(iii). Comments on the proposal with reference to the alternatives considered: NO

(iv). Comments on the Bio diversity Impact Assessment Report: Area is reach in Flora & Fauna as it is falls within the Western Ghats and will cause severe impact on disturbance on wildlife of that particular area and loss of habitat.

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification:

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification

S.no	Name of project	User Agency	Year	Area Diverted/ Permitted for use(ha.)
1.	Diversion of Forest land for four laning of existi	Public Works Department	2015	Wildlife - North

Impact(s)due to the diversion of area for the use of land for the projects referred above:

Impact(s)due to the diversion of area for the use of land for the projects referred above

S.no	Name of project	Upload impact report	Area Diverted /Permitted for use
1.	Diversion of Forest land for four laning of existi	Annexure Upload impact report	31.015

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980:

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980

S.no	Under Act	Name of Project	Details of vioiation	Period of work done	Area of forest land involved in violation	Name of person(s) responsible for violation	Designation & Address of person(s) responsible for violation	Action taken against the person(s) responsible for violation

Any other information that you would like to place on record for decision making:

Documents

S.No	Uploaded Additional Info. Files	Remarks
NIL		

(v). Provide comprehensive details of the likely impact of the current proposal in terms of sections 29 and/or section 35(6) of the Wildlife(Protection)Act, 1972 : NA

(vi).Has any work related to the project proposed been commenced at the proposed location : No

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A-5 Site inspection report of the Wildlife Warden/Chief Wildlife Warden highlighting important facts pertaining to the forest land

Division Name	Circle	Site inspected By	Whether site inspected	No. of times site visited	Site inspection report	Date of visit
Wildlife - North	Wildlife and Ecotourism	DFO		Two		11/01/2018,22/02/2018

(Specific recommendation of the Wildlife Warden/Chief Wildlife Warden with(Part II & III))

A-6 Specific recommendation of the Wildlife Warden/Chief Wildlife Warden for acceptance or otherwise of the proposal with reason

Division	Circle	Recommendation By	Recommendation	Reason	Letter	Whether CF agreed
Wildlife - North	Wildlife and Ecotourism	DFO	Recommended		PDF	

Print page

Dy. Conservator of Forests
Wildlife & Eco-Tourism (North)
Panaji - Goa

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IMPACT OF CURRENT PROPOSAL AND REMARKS:

The PWD , Goa has proposed the Widening of NH4 A Stretch from 84 .000 Km to Km 96.000 that passes through Bhagwan Mahaveer WLS and NP, Mollem . Total Area sought for diversion is 31.015 hac. i.e. 6.75 hac. From Wildlife Sanctuary and remaining 24.265 hac of National Park . The road is passing through the PA would be 13 Km in length. The land is laterite in nature with thick vegetation having canopy density is ranging between 06- 0.8. The vegetation varies from stunted bushes to tall trees.

Widening of existing highway will be going to do further fragmentation of an important wildlife refuge and corridor of Goa State.

Widening of existing road to four lanes will involve felling of more than 12000 no. of trees as per valuation report and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds and exotic species that out-compete native plants and lead to alter animals' use of habitats. Also it involved cutting on Hill side and filling on valley requires blasting operation may cause severe impact of disturbance to wildlife of that particular area in the form of noise and loss of habitat. As the work progress there will be more chances to increase landslides and soil erosion due to heavy rain resulting in damage to vegetation and siltation of rivulets exist in area.

In addition to this changes may occur in ecological and ecosystem process such as pollination, seed dispersal and carbon storage. The maximum portion of area to be acquired and conversion along road section is having steep slope i.e. valley in part of National Park and there are every possibilities to cause severe damage to fragile forest ecosystem by soil erosion and landslides, degrade soil quality, and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people depends.

The user agency has agreed to adopt the high costs of wildlife-friendly mitigation measures and agreed to build underpasses and overlays , however there may not be possible to prevent damage cause to wild animals from vehicular traffic passing through protected area , especially at night when, blinded by bright headlights . Over time, as animals learn to avoid roads, busy multilane highways become barriers that hinder wildlife movement, fragment populations, and restrict gene flow.

The user agency submitted a wildlife passage designs as per guidelines framed by Wildlife Institute of India under MoEF & CC, GOI, incorporated wildlife-friendly structural disigns such as flyovers or underpasses and Road over pass at suitable sites for local wildlife movement. It will help to make free movement to free ranging animals.

The user agency has proposed construction on Via-duct for the new carriage way in Valley side, which will have minimum impact on wildlife, since it does not requires any blasting. As per present alignment of road plan involves minimum acquisition of forest land of Bhagwan Mahaveer WLS & NP and no major portion of habitation existing in the proposed alignment. Also proposed 2 lane and existing 2 lane realignment will come on valley side and land required is only at Pier location, so the disturbance will be minimal.

Further on completion of construction phase, the faunal Spp will not get affected as provision for crossing project will be ready and not obstruct their free movement. Also, trees listed for felling under this project will be compensated in long term through the proposed avenue plantation Programme covering about more than 20,000 no. of trees.

Recommendations:

As the terrain is undulating with heavy rainfall and gradient above 30' the construction of road along the road is highly vulnerable to soil erosion as such all precaution measures are to be taken to control soil erosion and washout of soil in the forest streams. The precautions are to be taken in respect to soil erosion by construction of rubble wall bandaras across the counter lines so that soil should not wash away and soil erosion in controlled. The site is inspected and all possible under passes are recommended with dimensions as per the size of animals. These underpasses will reduce the death of Wildlife by accidents. The user agency should in particular look often this factors while execution of the project.

Dy. Conservator of Forests
Wildlife & Eco- tourism (N)

Annexure 19

1	2	3	4
3.	Smt. Preeti Mandrekar	Head Office	Commercial Tax Office, Pernem Ward.
4.	Shri Rajendra S. Gaude	Head Office	Commercial Tax Office, Ponda Ward.
5.	Smt. Geeta Gaonkar	Head Office	Commercial Tax Office, Margao Ward.
6.	Smt. Pallavi Joshi	Head Office	Commercial Tax Office, Vasco-da-Gama Ward.
7.	Shri Sirajuddin G. Jamadar	Head Office	Commercial Tax Office, Panaji Ward.

All the above Officers shall complete their handing over and taking over formalities within a period of week and submit compliance to Finance (Rev. & Cont.) Department.

By order and in the name of the Governor of Goa.

Pranab G. Bhat, Under Secretary, Finance (R&C).

Porvorim, 8th November, 2019.

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Department of Forest

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Notification

No. 2/185/2003-FOR/354

In exercise of the powers conferred by Section 6 of the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972) hereinafter referred to as the "said Act" and in supersession of Government Notification No. 2/185/2003/FOR/214 dated 5-08-2016, published in the Official Gazette, Series II No. 20 dated 18-08-2016, the Government of Goa hereby constitutes the State Board for Wild Life consisting of the following members, namely:-

1. Hon'ble Chief Minister of Goa — Chairperson.
2. Hon'ble Minister for Forests — Vice-Chairperson.
3. Shri Pratapsingh Rane, Hon'ble MLA, Poriem — Member.
4. Smt. Alina Saldanha, Hon'ble MLA, Cortalim — Member.
5. Shri Prasad Gaonkar, Hon'ble MLA, Sanguem — Member.
6. Principal Secretary (Forests), Government of Goa — Member.
7. Principal Chief Conservator of Forests, Government of Goa — Member.
8. Secretary (Tribal Welfare), Government of Goa — Member.
9. Managing Director, Goa Tourism Development Corporation — Member.
10. Director General of Police, Government of Goa — Member.
11. A representative of the Armed Forces not below the rank of a Brigadier to be nominated by the Central Government. — Member.
12. Director of Animal Husbandry and Veterinary Services, Government of Goa — Member.
13. Director of Fisheries, Government of Goa — Member.
14. Officer to be nominated by the Director, Wild Life Preservation — Member.
15. Representative of the Wild Life Institute of India, Dehradun — Member.
16. Representative of the Botanical Survey of India — Member.
17. Representative of the Zoological Survey of India — Member.
18. Representative of the Goa Birds Conservation Network — Member.
19. Representative of the Vivekanand Environment Awareness Brigade — Member.
20. Representative of the World Wide Fund for Nature, India — Member.
21. Shri Rajendra Kerkar, Keri, Goa Environmentalist — Member.
22. Shri Amrut Singh, Bicholim, Goa — Member.
23. Shri Charan Desai, Ponda, Goa — Member.
24. Shri Arnold Noronha, Bardez, Goa — Member.
25. Dr. M. K. Janarthanam, Professor, Goa University — Member.

26. Shri Devidas Gaonkar, Herpetologist — Member.
27. Dr. Baban Ingole, Retired NIO Scientist — Member.
28. Shri Dhillon Gaonkar, Gaodongari, Goa — Member.
29. Shri Milind Kharkhanis, Retired Deputy Conservator of Forests, Panaji, Goa — Member.
30. Shri Ajay Gramopadhye, Ponda, Goa — Member.
31. Chief Wildlife Warden, Government of Goa — Member Secretary.

This Notification shall come into force on the date of its publication in the Official Gazette.

By order and in the name of the Governor of Goa.

Shaila G. Bhosle, Under Secretary (Forests).

Porvorim, 11th November, 2019.

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Department of Home

Home—General Division

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Order

No. 1/76/2012-HD(G)/GHRC/3012

Read: Order No. 1/76/2012-HD(G)/GHRC/3546 dated 29-11-2017.

Corrigendum No. 1/76/2012-HD (G)/GHRC/ /3546 dated 16-04-2018.

Corrigendum No. 1/76/2012-HD (G)/GHRC/ /3546 dated 18-07-2018.

Order No. 1/76/2012-HD(G)/GHRC/3117 dated 18-10-2018.

Order No. 1/76/2012-HD(G)/GHRC/143 dated 08-01-2019.

Sanction of the Government is hereby accorded to extend the term of contractual appointment of Shri Premanand M. Gaonkar, retired Section Officer of the Secretariat Cadre as Section Officer in the Goa Human Rights Commission, Panaji for further period of one year with effect from 01-11-2019 to 31-10-2020 or till the vacancy is filled up on regular basis, whichever is earlier on the same terms and conditions as stipulated in the Order/Corrigendum cited at read above.

The expenditure on the above shall be debited from the Budget Head Demand No. 23, 2070—Other Administrative Services, 00, 105—Special Commission of Enquiry, 03—Goa State Human Rights Commission (N.P.), 01—Salaries.

This issues with the approval of the Department of Personnel vide their U.O. No. 2832/F dated 06-11-2019 in terms of O. M. No. 1/1/2017-Addl. Secy(PER)/2941 dated 25-10-2019.

By order and in the name of the Governor of Goa.

Nilesh K. Dhaigodkar, Under Secretary (Home-II).

Porvorim, 12th November, 2019.

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Department of Industries

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Notification

No. 3/23/2019-IND/656

In exercise of the powers conferred by Clause (b) of sub-section (3) of Section 5 of the Goa Investment Promotion Act, 2014 (Goa Act 13 of 2014) the Goa Investment Promotion and Facilitation Board (Goa-IPB) has appointed a sub-committee with effect from 08-08-2019 with the following composition:-

1. Hon'ble Minister for Industries, Government of Goa — Chairman.
2. Secretary (Industries) — Member.
3. Shri Harish Rajani, Member, Goa-IPB — Member.
4. Shri Atrey Sawant, Member, Goa-IPB — Member.
5. Shri Manoj Caculo, Member, Goa-IPB — Member.
6. Chief Executive Officer, Goa-IPB — Member Secretary.

The terms of reference of the Committee shall be as under:-

(i) Evaluation of all new project proposals under the purview of Goa-IPB (such as new projects, expansion projects) and giving recommendations before the Board Meeting.

(ii) Evaluation of investments of value less than or equal to Rs. 5.00 crore which does not meet any of the criteria specified in sub-section 3.

(iii) Decision on any matters related to project proposals including but not limited to name change, address change, review of proposals, and revocation of proposals that may be ratified at the subsequent Board Meeting.

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Annexure 20

To,

The Chief Wildlife Warden

Member Secretary

Wildlife Advisory Board

Govt. of Goa

Sub: The meeting held on Dec 02, 2019 and the agenda therein

Sir,

We, the undersigned members of the Wildlife Advisory Board, would like to bring to your notice our concerns with regards to the above mentioned subject.

1. The notes on the agenda of the meeting were handed over at the start of the meeting, giving us no or little time to understand the projects that had come for approval and their merits/demerits. Further, no copies of the impact studies were circulated for us to take any informed decision in these matters.
2. We would have appreciated if the projects were presented by the proponents instead of the Forest Department, since it sent a wrong signal to everyone.
3. We are concerned with the way the meeting was conducted with hardly any formal structured discussion or debate on serious issues, cross speaking by members, no chance for everyone to speak and a haste to get over with the agenda.
4. It was also noted that all the points on agenda were pertaining to one PA, i.e. the Bhagwan Mahaveer Wildlife Sanctuary and National Park. The three proposed linear projects will further fragment the already fragmented PA. A total of 216 ha. of forests is sought to be diverted for these projects, most of which is pristine and virgin in nature. While the provided notes spoke of individual projects and the forest to be diverted, the impact of these projects, especially the cumulative impact on biodiversity does not find mention. e.g. what would be the impact of the high tension wires passing over the Tambdi-Surla stream on large birds like raptors, hornbills that use these open areas to fly? Are we aware that for a species of dragonfly described in 2012, *Idionyx gomantakensis,* Collem happens to be the type locality and the species hasn't been sighted anywhere else in the State. The double-tracking will destroy this only known locality and we could be responsible for the fastest local extinction of a species.
5. Further, we are all aware that the railways and road projects are part of the larger scheme of things and will have an impact on wildlife throughout the stretch since wildlife exists beyond the boundaries of the PA's. The latest case of the leopard road kill happened in Khandepar far away from any protected area. As the State Board for Wildlife we need to demand for an assessment of the cumulative impact of these linear development happening throughout the State.
6. Many questions have remained unanswered on these projects. Proposed mitigation measures, except the overpasses and underpasses, were not discussed in the meeting.
    a. Compensatory afforestation needs a clear strategy. Random afforestation cannot compensate for loss of virgin tree cover.

   b. How will material be taken to inaccessible areas for the transmission lines without cutting roads through the forest?
   c. What is the alignment of the transmission line?
   d. Is there any restriction of movement of vehicles in the night?
   e. Has any speed limit been specified for the vehicle and train movement? And how will it be monitored?

   We request a meeting as soon as possible to discuss the mitigation measures and their implementation in detail.

7. Having said all of the above, it disturbs us to see that the Govt. is pushing these projects in public interest through PA's, while some of the villagers that have been residing in forest areas for generations do not have access to good roads and electricity.
8. Since we gather that the above three projects will be approved by the Board, our request is to minute our objections to the same as well as request to minute objections raised by other members during the meeting.

This letter may kindly not be considered as a complaint but an appeal by citizens who are concerned about the protection and conservation of our natural spaces that are fast dwindling. We all appreciate the work being done by the Forest Department and in our personal capacities have worked and will continue to work with the Department on various fronts.

Thanking you

Yours sincerely,

Members of the State Wildlife Advisory Board

1. Goa Bird Conservation Network

2. Vivekanand Environment Awareness Brigade

3. Shri. Rajendra Kerkar

4. Shri. Arnold Noronha

5. Shri. Amrut Singh

6. Shri. Charan Desai

Annexure 21

The Indian Express dt 3 July 2020

Railway line to road, Centre clears 3 projects, Goa board says we were used as puppets

Records reviewed by The Indian Express show that the projects will lead to the diversion of 170 hectares of protected area in forest land in the Bhagwan Mahavir Wildlife Sanctuary and its core notified area, Mollem National Park.

Written by Smita Nair | Panjim | Updated: July 3, 2020 3:10:28 pm

When contacted, Santosh Kumar, Chief Wildlife Warden, confirmed that "a few people raised issues" during the state board meeting. "Now, they have to write to the National Board," he said. (Express photo/Vitthal Shelke)

A Railway line, a highway and a power transmission line — since December and during the lockdown, the Centre has cleared three key Goa projects claiming a state panel had approved it. But now at least six members of that panel have come out to say they are unaware of the clearance and have red-flagged their environmental concerns. A Supreme Court panel has taken note, too.

Double-tracking of a showpiece 120-year-old rail line from Karnataka's Hospet to Vasco; laying down a 400-kv power transmission line and four-laning of the existing NH 4A are the three projects cleared by the Standing Committee of the National Board for Wildlife (NBWL) headed by Environment Minister Prakash Javadekar.

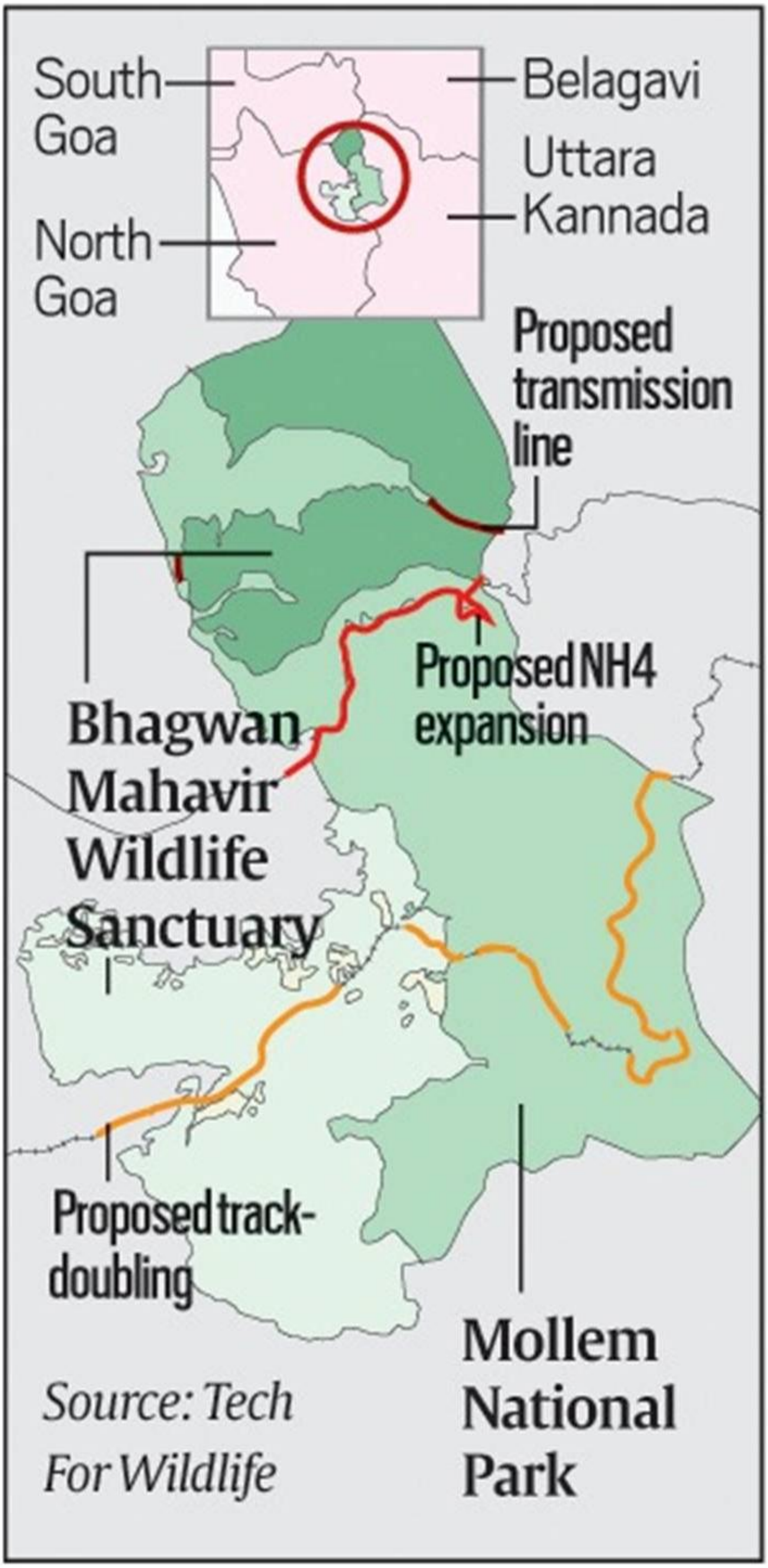
Minutes of the meetings, one on December 17 last year and the other on April 7 this year, show that the projects were cleared by the NBWL which said that the Goa State Wild Life Board (GSWLB) "recommended the proposals in its meetings".

Not true, say some members of the state board, who are all noted environmentalists.

According to them, no recommendations were made; they were not aware of the agenda for the state board meeting until they reached the venue; the mitigation measures are "unscientific". And, "everything has been given to these projects on a platter with scant regard for the bio-diversity or richness of the Western Ghats".

On Thursday, the Central Empowered Committee constituted by the Supreme Court sought a detailed response within 30 days from authorities and companies involved in implementing and clearing the three projects following a complaint from NGO Goa Foundation.

Records reviewed by The Indian Express show that the projects will lead to the diversion of 170 hectares of protected area in forest land in the Bhagwan Mahavir Wildlife Sanctuary and its core notified area, Mollem National Park.


South Goa
North Goa
Belagavi
Uttara Kannada
Proposed transmission line
Bhagwan Mahavir Wildlife Sanctuary
Proposed NH4 expansion
Proposed track-doubling
Mollem National Park

Source: Tech For Wildlife

Indeed, the Environment Impact Assessment reports of these projects by the Forest Department point to “fragmentation of important wildlife refuge” and “severe changes to ecological and ecosystem process”, and warn that they will “degrade soil quality” and “deplete aquatic reservoirs”.

Records of the two meetings show that the clearance was based on mitigation measures suggested by the Chief Wildlife Warden, who is the member secretary of the GSWLB.

When contacted, Santosh Kumar, Chief Wildlife Warden, confirmed that “a few people raised issues” during the state board meeting. “Now, they have to write to the National Board,” he said.

Kumar said two types of clearances are required for such projects, and there is still one stage left.

“Since the project falls inside a National park and sanctuary, the clearance of the National Board is required, which is done. Now clearance under the Forest Conservation Act is required for use of forest land for non-forestry purposes. That approval is with the Ministry of Environment. The Central government will decide on FCA clearance based on available data,” he said.

The 30-member Goa State Wildlife Board was reconstituted in November 2019, with members from various government departments, including Tourism, Fisheries, Animal Husbandry and Tribal Welfare, and 10 private members drawn from environmentalists and NGOs.

Its first meeting was held at the official residence of Chief Minister Pramod Sawant, who is the board’s chairman, on December 2, 2019, when the projects were cleared.

“We were told this is a meeting to introduce everyone and discuss general matters. There was no talk of this being an environment assessment discussion or a project clearance meeting,” said environmentalist Rajendra Kerkar, one of the members. “The haphazard manner in which the meeting was done, with no discussion, rounding off proposals in less than an hour… is shocking.”

Following the state board meeting, some of its members — NGOs Goa Bird Conservation Network and Vivekanand Environment Awareness Brigade, and environmentalists Kerkar, Arnold Noronha, Amrut Singh and Charan Desai — wrote to the Chief Wildlife Warden expressing concern “on the way the meeting was conducted with hardly any formal structured discussion or debate on serious issues”.

Pointing out that “no cumulative impact assessment (was) done of all three projects to contiguous wildlife network between Goa and Karnataka” in the Western Ghats, the letter said the projects were presented by the Forest Department instead of the proponents, which “sent a wrong signal”.

According to Anamika Gode, an environmental lawyer who has been probing the project clearances, “Section 29 and 35 (6) of the Wildlife Act are extremely prohibitive, and nothing can be permitted unless it is beneficial to wildlife or their habitat. Whether or not a project satisfies this strict legal mandate is to be examined by the wildlife boards alone, always keeping the interest of wildlife at the forefront.”

Parag Rangnekar, who represents Goa Bird Conservation Network in the state panel, says the only “environment detail” discussed in the state meeting was the “number of trees to be axed”. “It’s appalling how these meetings, which form the basis for environmental clearances at the state and national levels, are conducted with lack of technical study, no quantum strategy for compensatory afforestation,” he said.

Members Charan Desai and Amrut Singh said the “projects’ impact has still not been explained to any of us”. “We were used as puppets. They wanted signatures of attendance to forward to the National Board,” Singh said.

Responding to these allegations, Kumar said: “They raised many issues, and the project proponents, the authorities from national highways and railways and whosoever was there, explained to them and accordingly a decision was taken by the Chief Minister who is also the chairperson of the Board… There is no provision in the law that says a development project has to be done by plebiscite. It has to be done by the competent authority.”

The National Wildlife Action Plan

Preamble

Background

The first National Wildlife Action Plan (NWAP) was adopted in 1983, based upon the decision taken in the XV meeting of the Indian Board for Wildlife held in 1982. The plan had outlined the strategies and action points for wildlife conservation which are still relevant. In the meanwhile, however, some problems have become more acute and new concerns have become apparent, requiring a change in priorities. Increased commercial use of natural resources, continued growth of human and livestock populations and changes in consumption patterns are causing greater demographic impacts. Biodiversity conservation has thus become a focus of interest. The National Forest Policy was also formulated in 1988, giving primacy to conservation. Hence this new National Wildlife Action Plan.

Overview

- The term wildlife encompasses all uncultivated flora and undomesticated fauna. Every species has the right to live and every threatened species must be protected to prevent its extinction.
- Water, wilderness and wildlife are irrevocably interlinked. With mounting agricultural, industrial and demographic pressures, wilderness areas, which are the richest repositories of wildlife and biodiversity have either shrunk or disappeared. Their continued existence is crucial for the long-term survival of the biodiversity and the ecosystems supporting them.
- Effective ecosystem conservation is the foundation of long-term ecological and economic stability. Natural processes, forests and other wild habitats recharge aquifers, maintain water regimes and moderate the impact of floods, droughts and cyclones. Thereby they ensure food security and regulate climate change. They are also a source of food, fodder, fuel and other products supplementing the sustenance of local communities.
- India ranks sixth among the 12-mega biodiversity countries of the world. Conservation of biodiversity is directly linked with conservation of ecosystems and thus with water and food security. These together constitute a major plank of Indian economy.
- National planning has not taken into account the adverse ecological consequences of shrinkage and degradation of wilderness from the pressures of population and commercialisation. As a result, we have witnessed the alarming erosion of our natural heritage, which comprises rivers, aquifers, forests, grasslands, mountains, wetlands, coastal and marine habitats, arid lands and deserts. This has also affected natural phenomena such as breeding, ranging and migration of wildlife and geomorphological features.

Action required

1. Planning Commission to recognise areas within the radius of 5 km. from the boundary of national parks and sanctuaries as special development areas and earmark separate funds for this purpose under the State plans.

Various Union Ministries to work out the following details:

- Ministry of Agriculture and Rural Development should be approached to give priority to soil conservation, partial development, organic farming, evolving appropriate cropping pattern to minimise crop damage from wild animals and adopt crop insurance scheme.
- Ministry of Agriculture should also concentrate on cattle breed improvement, stall feeding and developing appropriate methodology for marketing milk.
- Ministry of Water Resources to be convinced not to pursue big projects for irrigation in the area and to opt for minor irrigation relying on check dams, ponds, wells and other appropriate water harvesting units.
- Transfer of technology and grant of loan for development of sericulture, pisciculture, apiculture for piggery and poultry.
- Department of Small Scale Industries should develop all industries based on traditional crafts and development of information technology.
- Ministry of Non Conventional Energy Sources should popularise biogas, solar energy on solar pump sets, biogas plants, solar cookers and other new technologies as an alternative to fuelwood.
- Ministry of Surface Transport and Ministry of Railways to plan roads in such a manner that all national parks and sanctuaries are by-passed and integrity of the PA is maintained. Wildlife corridors also need to be avoided, or mitigative measures (such as restricting night traffic) need to be employed.
- Ministry of Human Resource Development to introduce the subject of conservation as part of the curriculum at all levels and provide training in vocations that do not involve consumptive use of wood at ITI and other institutions.
- Ministry of Information and Broadcasting should launch special programmes on conservation and the need for harmony.
- Ministry of Tourism to adopt a model of tourism that would help flow of direct benefits from protected areas to local people.
- Ministry of Home Affairs to sensitise all the forces to help in protection of wildlife and their habitats.
- Ministry of Defence to provide help to armed forces in the census and survey of endangered species in far-flung and remote areas of the country, and to help apprehend criminals indulging in smuggling.
- Ministry of Finance to issue directions to state governments that like the police and other law enforcing agencies, the field formations of forest departments are exempt from all financial and other cuts. Adequate funds should be made available for protection, prevention of poaching and protecting wildlife habitats

Recommendations of the Sub-Committee on Guidelines for Roads in Protected Areas.

In pursuance to the decision taken by the Standing Committee of the NBWL in its 28th Meeting held on 20th March 2013, a sub-committee under the chairmanship of Dr. M.K. Ranjitsinh, Member, National Board for Wildlife, was constituted by the Ministry of Environment and Forests vide O.M. No. 6-62/2013-WL dated 26th June 2013. The terms of reference of the sub-committee are as follows:

- To frame a comprehensive guideline for construction/repair or roads passing through PA in the country
- Design best practices for such roads passing through PAs so as to have better wildlife conservation

The 1st meeting of the sub-committee was convened on 2nd July, 2013.The second meeting of the sub-committee was convened on 6th August, 2013. The list of participants who attended both the meetings are given in **Annexure-1.**

PREAMBLE

Background

Roads are an essential part of India's development, providing vital connectivity and transportation across the country. Yet, when they intersect natural areas (as opposed to being situated in already-modified human-dominated landscapes), roads have wide-ranging and complex impact on natural areas and wild species inhabiting these areas. Within India's Protected Areas, the extensive impact of roads remains poorly understood, except in the obvious and serious instance of wild animal mortality due to road accidents. Elsewhere, it was been well-established that roads have detrimental ecological effects in both terrestrial and aquatic natural ecosystems. Roads further fragment the already highly fragmented natural habitats. They break forest contiguity, impinge on forests and well-worn migratory paths of animals, break tree cover and canopy, slice vegetation—all of which gravely impact wildlife. Roads cause soil erosion and landslides. Crucially, roads are the first step to ancillary development and an increasing human footprint in the area, thus leading to accelerated developmental, tourist and hunting pressures, increase in pollution, litter, and various disturbances. Unless great vigilance and checks are provided, roads provide conduits for illegal extraction of timber and forest produce and for poaching, particularly at night, from vehicles. It is very difficult to provide the requisite surveillance and it is well-established that PAs have suffered loss of vegetative cover and poaching after construction of roads. In PAs in the mountainous region , construction of roads and their widening has grave consequences, including landslides and erosion, as the debris from road cuts on hillsides is invariably tipped over the sides. A background paper on linear intrusions into natural areas, including roads, commissioned by the National Board for Wildlife in 2011, provides an exhaustive review of the current state of knowledge on this topic[1], and a companion document[2] provides detailed guidelines by which their negative impact on natural habitats and wild species, can be minimised.

BASIC PRINCIPLES

We wish to reiterate a point articulated clearly and emphatically in the **National Wildlife Action Plan – 2002-2016**, which states that the "*Ministry of Surface Transport... to plan roads, highways, expressways in such a manner that all national parks and sanctuaries are by-passed and integrity of the PA is maintained. Wildlife corridors also need to be avoided, or mitigative measures (such as restricting night traffic) need to be employed.*" This principle must serve as the cornerstone of any road plan that is being conceived in the vicinity of any wildlife or Protected Area, and envisages the Ministry of Surface Transport to work in coordination with the Ministry of Environment & Forests, and other relevant authorities and experts. Further, we believe that this principle must apply to all other roads being planned by any other agency at the national, state, or local levels. The implication of this action point articulated in the National Wildlife Action Plan (NWAP) is also that plans be made proactively by relevant agencies to realign existing roads passing through protected areas, in a way that PAs are bypassed and, subsequently, decommission roads that intersect PAs.

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[1] Raman, T. R. S. 2011. Framing ecologically sound policy on linear intrusions affecting wildlife habitats: Background paper for the National Board for Wildlife. Available from: envfor.nic.in/assets/Linear%20intrusions%20background%20paper.pdf

[2] NBWL. 2011. Draft guidelines for linear infrastructure intrusions in natural areas: roads and powerlines. Available from: http://envfor.nic.in/assets/FIRSTDraft%20guidelines%20roads%20and%20powerlines.pdf

If there are viable alternative alignments—as observed in a number of cases—to roads that otherwise intersect PAs, those within PAs must gradually be phased out and eventually decommissioned, while the alternate road should be improved. This must be done in active coordination with the relevant ministries, departments and authorities, as noted above.

In planning roads, within and in the vicinity (defined here as roads that are situated inside and within 1 km radial distance) of protected areas, we recommend that following fundamental principles must be followed in order of priority: Avoidance, Realignment, Restoration.

1. ***Principle of Avoidance*:** The foremost option would be to altogether avoid areas that are within or in the vicinity of any Protected Area and to find alternatives that are socially and ecologically more appropriate.
2. ***Principle of Realignment:*** This follows as a corollary of the first principle. Road projects must investigate and demonstrate that they have considered other alternative routes that avoid natural areas of high ecological value. This must be an integral feature of a project proposal and implementation documents. Realignments must also be developed in a transparent manner through consultation with local communities affected by the routing and subject to ecological and wildlife considerations.

   User agencies seeking clearances for roads must demonstrate as to how they have taken these factors into account, before their proposals can be considered for approval by the SC-NBWL.
3. ***Principle of Restoration:*** In natural areas, existing roads that are in disuse (e.g., old logging roads), or evaluated to be inefficient or detrimental to their objects, shall be targeted for decommissioning and subsequent ecological restoration, as the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

The Deputy Inspector General of Forests (WL) briefed the committee regarding the existing guidelines for roads within Protected Areas, viz.:

(i) Decision of the Standing Committee of IBWL, as per decision taken during the meeting held on 14.6.2000. This held that roads that have already been tarred should continue to be maintained and repaired properly, in the current form. No roads inside the National Parks and Sanctuaries should be widened or upgraded.

(ii) During the meeting of 14th October 2011, it indicated that "*No widening of existing roads shall be permitted, and the status of finishing of the surface of the repaired road(s) shall remain same as that of the original road(s), i.e.,* *untarred roads shall remain untarred after repairs, and only originally tarred roads shall be repaired and tarred."*

Recommendations

The committee recommends the following:

1. The *status quo* of the roads passing through National Parks and Core Critical Tiger Habitats (CTH) shall remain the same. The roads could be maintained and repaired in the best manner possible in their current form and present width. No widening or upgradation is to be allowed. If it is an existing tarred road, it shall be maintained as such and no widening of the tarred surface or the widening of the road itself, may be done.
2. For Wildlife Sanctuaries and Conservation Reserves, the same norms as in the case of National Parks and Core, Critical Tiger habitats, shall apply. However, in case of Sanctuaries and Conservation Reserves, culverts and metalling in sections of roads that become impassable or 'all weather roads' for approach/connectivity to villages within the Protected Areas, can be considered for approval in the Standing Committee of NBWL. If necessary in such cases, required maintenance could be taken up by the Forest Dept. on the recommendation of the Standing Committee of NBWL. It may be stressed again, that the width and status of the existing roads shall remain the same and no upgradtion will be allowed. In considering such proposals, the method of such road construction/improvement such as blasting, borrow-pit digging, etc., the impact upon movement of animals from one habitat to another/wildlife corridors, access of water, etc. would be criteria for consideration.
3. Where roads approaching / passing by National Parks/Core-Critical Tiger Reserve/Wildlife Sanctuary are within a radius of 1 km thereof, or within the Eco-Sensitive Zone, whichever of the two is lesser, would be treated on same basis/guidelines as are applicable to the Protected Areas category that it is in proximity of.
4. Presently, as Community Reserves are outside the purview of Section 29 of Wildlife (Protection) Act, 1972, the committee decided not to delve into the matter of roads passing through such PAs.

1. The committee recommended that, no change of current ownership and maintenance of roads passing through the Protected Areas should be permitted. However, in specific cases where such a transfer is required to better manage

roads so as to cause minimal impacts on wildlife, as in the case of transfer of certain PWD /other roads which pass through PAs, back to the concerned Forest Dept. such transfers could be considered.

5. Roads being managed by the Forest Department for the purpose of patrolling and tourism, were of equal concern like other roads inside Protected Areas. It was noted that there was a large network of such roads in several National Parks/Tiger Reserves/Wildlife Sanctuaries. No new roads should be constructed by the concerned Forest Departments and if so required to be constructed, the approval of the National Tiger Conservation Authority (in case of Tiger Reserves) and concerned State Boards for Wildlife in case of non-Tiger Reserve for other PAs., must be obtained. The concerned authority should be able to demonstrate and justify the grounds for construction of the new roads within PAs, in the conservation interest of the concerned PA.

6. The committee also agreed that the Wildlife Institute of India should formulate guidelines - for making roads by the Forest Departments, for protection purposes, in Protected Areas, Critical Wildlife Habitats and designated corridors.

Management of roads within PAs:

Mitigation: For existing roads, repairs and maintenance of existing roads, and for repairing roads that are impassable during monsoon/all-weather roads as described in the recommendations above, it is imperative that mitigation measures are included in the project planning, design, budget, implementation, and monitoring stages. This requires measures to minimise detrimental effects of roads on ecology, wildlife, local communities and users. This shall be considered only for existing structures and for new cases, where the options given earlier have been comprehensively considered and overruled, with adequate justification. These are also subject to requisite approvals from the state authorities and boards, the Ministry of Environment and Forests and its statutory bodies, such as the National Board for Wildlife, Forest Advisory Committee, and the National Tiger Conservation Authority, as relevant to each case.

An exhaustive set of management measures have been recommended in the NBWL's draft guideline document mentioned above (pages 8-13, and 17-21). While fully endorsing these recommended management measures, for ready reference, some of the key management considerations applicable for already existing roads, are herewith highlighted:

- Ban on night traffic (dusk to dawn) is essential to save animals from disturbance from the constant flow of traffic, and thus allow them passage. It is recommended that night traffic bans should be initiated and applied in Core Critical Tiger Habitats, National Parks and Sanctuaries. There are such existing bans in various Tiger Reserves and NPs. Night passes may be provided for villagers/communities living within the PAs.
- Strong regulations controlling timing and traffic volumes need to be built in for all roads through Protected Areas and critical habitats.
- Speed reduction is a must to reduce wild animal mortality, and can be achieved through imposed speed limits and speed breakers.
- Vehicles should not be allowed to stop within PAs.
- No use of horns within the PA, and no littering.
- Speed restrictions and other guidelines that spell out rules and avoidance of disturbance to wildlife and habitats along roads in PAs, must be prominently conveyed through well-designed signboards, at entry and exit points and all other relevant locations.
- Establishment of check posts by the forest department, at both entry and exit points.
- Wherever possible, natural animal crossings existing across roads should be retained or encouraged. For instance, overlapping tree canopy in closed canopy evergreen/semi evergreen forests is an essential attribute for the movement of arboreal species. Passage to waterholes and daily movements of animals must also be safeguarded.
- Underpasses: well-designed tunnels, culverts, pipes, and other structures can function as underpasses below roads and bridges, for a wide-range of terrestrial and aquatic species. Underpasses can also be deployed below railway lines/highways for passage of large bodied animals, viz elephants, tigers.
- During maintenance works on existing roads, the underlying principle should be that work must be carried on in a speedy manner, with minimal disturbance to wildlife and with adherence to all rules and regulations that govern wildlife and PAs.
- No work should be allowed between 6 pm to 8 am(just before dusk to just after dawn)
- The labour force required for road maintenance must have their camps outside, the concerned PA
- No firewood cutting or fuel collection from within the PA
- Waste/debris should not be dumped in the PA/or adjoining rivers/nullas/waterbodies
- No taking of any material like sand, gravel etc from the PA. All materials for construction, road maintenance etc should be brought from outside
- No vegetation/tree should be cut or damaged/ during the maintenance.

Government of India
Ministry of Environment and Forests
Wildlife Division

Annexure 24

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi-110003

F. No. 6-10/2011 WL
Dated: 19 **December 2012**

Sub: Guidance document for taking up non forestry activities in wildlife habitats.

Reference is invited to this Ministry's letter of even no. dated 15th March 2011 regarding the above mentioned subject. In this context, the undersigned is directed to mention that the matter has been discussed in great detail in the Ministry of Environment and Forests and the old guidelines have been reviewed in light of the existing provisions of laws and rules. It has been highlighted in the review that unless there is a clear legal delineation of elephant habitats and corridors, the implementation of the guidelines with respect to Elephant Reserves and corridors becomes very difficult. Therefore, the Wildlife Department is to work out a process by which these habitats acquire legal status. In the meanwhile, the revised guidelines, **annexed** to this letter, will be used as guidance for NBWL clearance for non-forestry activities are to be taken up in wildlife area.

2. It is clarified that while project proponents may simultaneously apply for Environment, Forest and NBWL clearances, in order to complete the formalities without undue delay, no rights will vest in or accrue to them unless all clearances are obtained. In other words, project proponents cannot rely upon the concept of *fait accompli*, if they have already received any of the clearances. The Environmental, Forest and NBWL clearances will all be processed on their respective merits, and the clearance of one aspect will not confer any right upon the project proponent. Complete clearance is obtained only when all the requisite clearances have been obtained by the Project Proponent. This approach would protect the integrity of the flora and fauna of the country, as well as bring in clarity and transparency in the issue of Environmental, Forest and NBWL clearance.

3. This is in supersession of the orders of even no. dated 15th March 2011, and any communication related to this document thereafter.

4. This issues with the approval of Hon'ble Minister of State (Independent Charge) for Environment and Forests.

(Vivek Saxena)
Deputy Inspector General of Forests (WL)

Encl: Revised guidelines

Distribution:

1. The Secretary, all Ministries/Departments of Government of India, New Delhi
2. The Chief Secretary, all States/Union Territories
3. The Pr. Chief Conservator of Forests, all States/Union Territories
4. The Chief Wildlife Warden, all States/Union Territories.

Copy to:

1. PS to Hon'ble MEF
2. PPS to Secretary (E&F), MoEF
3. PPS to DGF & SS, MoEF
4. PPS to Addl. DGF(WL)/PPS to Addl. DGF(FC)/PPS to Member Secretary, NTCA
5. PPS to JS (I.A Division)/ PPS to IGF (WL)/PPS to IGF& Director, PE/PPS to IGF (FC)
6. The NIC Cell- with a request to kindly upload the same on the official website of the Ministry.

GUIDELINES FOR TAKING NON-FORESTRY ACTIVITIES IN WILDLIFE HABITATS

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1. General Policy:

National Parks, Sanctuaries and Conservation Reserves are notified under the Wildlife Protection Act, 1972 as dedicated areas rich in, and representing the unique biodiversity of a place. Such protected areas are considered very important for conservation of biodiversity, and for ensuring the healthy populations of its floral and faunal components, for the present and future generations alike. However, the rising human population and its growing demands for socio-economic development put increasing stress on forests including protected areas both directly and indirectly. This calls for a balance that has to be struck between development and conservation implying that any activity involving use or diversion of any part of a notified protected area may be considered only under **most exceptional** circumstances, taking fully into account its impending impact on the biodiversity of the area, and consequently on the management of the Protected Area. A critical part of this balanced approach is to spell out the feasibility of mitigation to address the impacts without compromising the management objectives of the Protected Area. The activities to be taken up in the identified wildlife habitats also need to comply with the orders of the Hon'ble Supreme Court in addition to the statutory requirements as provided in the Wild Life (Protection) Act, 1972.

2. Scope:

Measures to protect the wildlife and biodiversity in general include *inter alia*, notification of suitable wildlife habitats as Protected Areas (National Parks, sanctuaries etc.) under the Wild Life (Protection) Act (WLPA), 1972. Recommendations of the National Board for Wildlife (NBWL) are prescribed in the Act for regulating any activity inside such areas. Hon'ble Supreme Court thought a number of order has further made it essential to seek the recommendations of this advisory body for regulating activities in the adjoining areas to the Protected Areas. Protection of other forests is ensured through the Forest (Conservation) Act 1980 wherein, recommendations of the Forest Advisory Committee are prescribed for this purpose. Protected areas cover generally the known habitats of wildlife including important flagship species. Tiger Reserves represent specifically notified areas under the WLPA focusing on conservation of the charismatic big cat under the Project Tiger in view of the specially threatened status of this national animals. With a view to ensuring conservation of elephants, the national heritage animal, 'Project Elephant' is operational. Technical and financial assistance is provided by the Central Government for conservation of elephants in the designated elephant habitats in the country. But presently such habitats are not legal entities. Though many existing elephant habitats are part of the existing Protected Areas, a proposal for enabling notification of such important habitats as elephant reserves under appropriate legal provisions is also under consideration of the government in the Ministry of Environment and Forests. It is expected that once the legal provisions for declaration of elephant reserves is in place, such areas will also be included under the regulatory regime under Wild Life (Protection) Act 1972 as proper legal entities.

These guidelines prescribe the process of obtaining recommendations of the Standing Committee of NBWL under the Wild Life (Protection) Act 1972 with respect to the areas, for which this process is mandatory under the law, and also in compliance to relevant Hon'ble Supreme Court orders. These guidelines replace the guidelines dated 15.03.2011 issued earlier in this regard, along with all amendments made therein.

3. Activities inside Protected Areas:

The process of consideration of any proposal for use of areas inside the protected areas, as a mandatory requirement under the present statutes, involves consideration and recommendation of the **National Board for Wildlife**. However, as the **Standing Committee of National Board for Wildlife** has been delegated the powers of the National Board for Wildlife, such cases are to be referred to the Standing Committee of National Board for Wildlife for consideration and recommendation. Details of such situations where such reference is warranted are described below:

3.1 Activities inside Wildlife Sanctuaries:

Section 29 of the Wild Life (Protection) Act, 1972 provides for the seeking the recommendation of the **State Board for Wildlife** (*a Board chaired by the State Chief Minister*) for any diversion of land or produce including water, etc. from a Sanctuary.

A per the proviso under Section 33 (a), no construction of commercial tourist lodges, hotels, zoos and safari parks can be undertaken inside a sanctuary except with prior approval of the Standing Committee of NBWL.

Further, in view of the directions dated 9th May 2002 of Hon'ble Supreme Court in Writ Petition (Civil) No. 337/1995, all such proposals in respect of a

Sanctuary or a National Park also require Supreme Court's approval based on the recommendation of the **Standing Committee of National Board for Wildlife** (*a Committee chaired by the Minister in charge of the Ministry of Environment and Forests*).

3.2 Activities inside National Parks:

Section 35 (6) of the Wild Life (Protection) Act, 1972 provides that the recommendation of the **National Board for Wildlife** (*a Board chaired by the Prime Minister*) is essential for any use or diversion of the habitat of any wild animal, or produce including water, etc. in a National Park.

This proviso is also applicable with respect to National Parks in view of Section 35(8) of the Act.

In the circumstances, any activity proposed within the boundaries of a National Park or Wildlife Sanctuary shall require the recommendation of the Standing Committee of NBWL, and the approval of the Hon'ble Supreme Court.

Section 33 (8) of the Wild Life Protection Act, 1972 provides that no construction of commercial tourist lodges, hotels, zoos and safari parks can be undertaken inside a National Park except with prior approval of the Standing Committee of NBWL.

3.3 Activities inside a Tiger Reserve:

A Tiger Reserve notified under the provisions 38V (1) of WLPA may include an existing Protected Area or other forests (as the buffer areas). The Tiger Reserve, once notified gets conferred protection on par with a Wildlife Sanctuary under section 38V (2). Further section 38W makes it mandatory to obtain approval of Standing Committee of NBWL for any activity including alteration of boundaries of Tiger Reserves. Therefore, any proposal involving any area under the notified Tiger Reserve will also be governed by the relevant provisions applicable to the Wildlife Sanctuaries and therefore, will be referred to the Standing Committee of NBWL for consideration.

3.4 Activities inside Conservation Reserves:

The Ministry of Law and Justice has opined that activities to be taken up inside a Conservation Reserve can also be dealt with in the Standing Committee of NBWL. Therefore, the procedure indicated under para 4 below needs to be followed for planning and executing any activity inside Conservation Reserve also.

3.5 Activities in areas other than Protected Areas:

In addition to the notified protected areas as described above, the consideration of the Standing Committee of NBWL has been prescribed in certain circumstances. which are listed below:

3.5.1 Activities within 10 Kms from boundaries of National Parks and Wildlife Sanctuaries:

In pursuance to the order of Hon'ble Supreme Court dated 4th December 2006 in Writ Petition (Civil) No. 460/2004, in case any project requiring Environmental Clearance, is located within the eco-sensitive zone around a Wildlife Sanctuary or National Park or in absence of delineation of such a zone, within a distance of 10 kms from its boundaries, the User agency/Project Proponent is required to obtain recommendations of the Standing Committee of NBWL.

3.5.2 Activities within areas connecting the Tiger Reserves, notified by NTCA for controlling the land use as per section 38 O (g):

Section 38 O (g) of the Wild Life Protection Act, 1972 entrusts the responsibility to NTCA to ensure that areas connecting Tiger habitats are not diverted for ecologically unsustainable habitats except in public interest and with the approval of NBWL. Proposals for any activities in such areas duly notified by NTCA, and recommended by it in accordance with these provisions, to be covered under such regulation will be permitted only after seeking recommendations of the Standing Committee of NBWL. Violation of this provision is required to be dealt with by the NTCA.

4. PROCEDURE TO BE FOLLOWED FOR CONSIDERATION OF PROPOSALS BY THE STANDING COMMITTEE OF NATIONAL BOARD FOR WILDLIFE:

4.1 The User Agency/Project Proponent is required to submit the proposal in the prescribed proforma that has been prescribed by the Ministry of Environment and Forests, and is available on the website of the Ministry (http://moef.nic.in/modules/others to be filled in) **(Annexure-1)**.

4.2 The prescribed proforma has **five** parts and each part is required to be filled in by the User Agency; concerned Divisional Forest Officer/Park Manager; Concerned Chief Conservator of Forests; Concerned Chief Wildlife Warden and the Forest Secretary.

4.3 The proforma also seeks information in detail on the biodiversity of the area in question; maps of the area, other activities already in place; possible impacts of the proposal, etc.

4.4 The User agency is required to submit Part-I and Part-II of the proforma duly filled in to the concerned Forest Officer, who in turn, forwards the same to the Chief Wildlife Warden through the Chief Conservator of Forest.

4.5 The Chief Wildlife Warden, after giving his specific comments on the proposal, shall forward 15 copies of the same to the Government of India, through the Forest Secretary **after obtaining the recommendation of the State Board for Wildlife on the proposal.**

4.6 The proposal so received from the State Chief Wildlife Warden will be placed before the Standing Committee of NBWL, chaired by Minister of State (I/C) Environment and Forests. The meeting of the Standing Committee is convened once in 2-3 months.

4.7 In cases where the area proposed for diversion is large and/or the impact of the project on wildlife is considered to be serious, site inspections may be conducted by the members of the Committee or further studies/ surveys may be conducted by experts on the instructions of the Standing Committee of NBWL.

4.8 The site inspection reports are generally considered in the next meeting of the Standing Committee to enable the Committee to make its recommendation.

4.9 After the Standing Committee of NBWL recommends the proposal, the User Agency/State Government is required to approach Hon'ble Supreme Court for final clearance in view of the Court orders dated 13.11.2000 .

[**Note:** *Hon'ble Supreme Court vide their order dated 13.11.2000 had directed that there shall be no dereservation/ denotification of National Parks and Sanctuaries without approval of the Supreme Court. Therefore, to take up any such activity, a clearance from Hon'ble Court is mandatory.]*

4.10 In case of Border Roads, proposals of the Ministry of Defense, a simplified proforma for simultaneous clearance under the Forest (Conservation) Act, 1980 and wildlife clearance is being adopted under 'A Single Window System'.

5. PROPOSALS FOR SURVEY WORK TO BE CARRIED OUT INSIDE NATIONAL PARKS AND WILDLIFE SANCTUARIES:

In case any kind of survey work and/or Environment Impact Assessment (EIA) studies, that is a prelude to future diversion of land, are to be taken up in areas involving a wildlife habitat, then also the entire procedure, as prescribed in paragraph 4 above would need to be followed.

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Annexure 25

Government of India
Ministry of Environment, Forests and Climate Change
Wildlife Division

6th Floor, Vayu Wing
Indira Paryavaran Bhawan,
Jor Bag Road, Aliganj,
New Delhi-110003

F. No. 6-62/2013 WL
Dated: 22nd December 2014

The Principal Secretary (Forests)
All States/Union Territory Governments.

Sub: Recommendation of the sub-committee on Guidelines for roads in Protected Areas.

Sir/Madam,

In pursuance to the decision taken by the Standing Committee of NBWL in its 28th meeting held on 20th March 2013, a sub-committee under the chairmanship of Dr. M.K. Ranjitsinh, member, NBWL was constituted. The sub-committee submitted their report to the Standing Committee in its meeting held on 4th September 2013. A copy of the report is enclosed herewith.

The Standing Committee agreed to adopt the guidelines and had requested the Chief Wildlife Wardens to submit their comments, if any, on the guidelines to the Ministry. The report of the sub-committee was circulated to the Chief Wildlife Wardens, all States/Union Territories vide letter of even no. dated 25th November 2013. Comments have been received from a few State/Union Territories. Subsequently, the matter was also considered in the 31st meeting of Standing Committee of NBWL held on 12-13 August 2014.

Based on the recommendations of the Standing Committee of National Board for Wildlife, in the last meeting dated 12th-13th August 2014, the undersigned is directed to convey the following clarifications regarding consideration of proposals for roads within Protected Areas:

i. The principles provided in the report of the sub-committee have been adopted as generic principle.
ii. New roads shall not be proposed inside National Parks and Sanctuaries.
iii. The cases of resurfacing and strengthening of existing Highways, not involving widening within Protected Areas will be possible without reference to Standing Committee of National Board for Wildlife.
iv. Cases of widening, of the existing roads, if unavoidable due to reasons of purpose and alignment, could be placed before the Standing Committee, which shall consider such cases keeping in view the feasibility of mitigation measures irrespective of cost.

Yours faithfully,

(M.L. Srivastava)
Deputy Inspector General of Forests (WL)

Encl: As above.

Copy to:

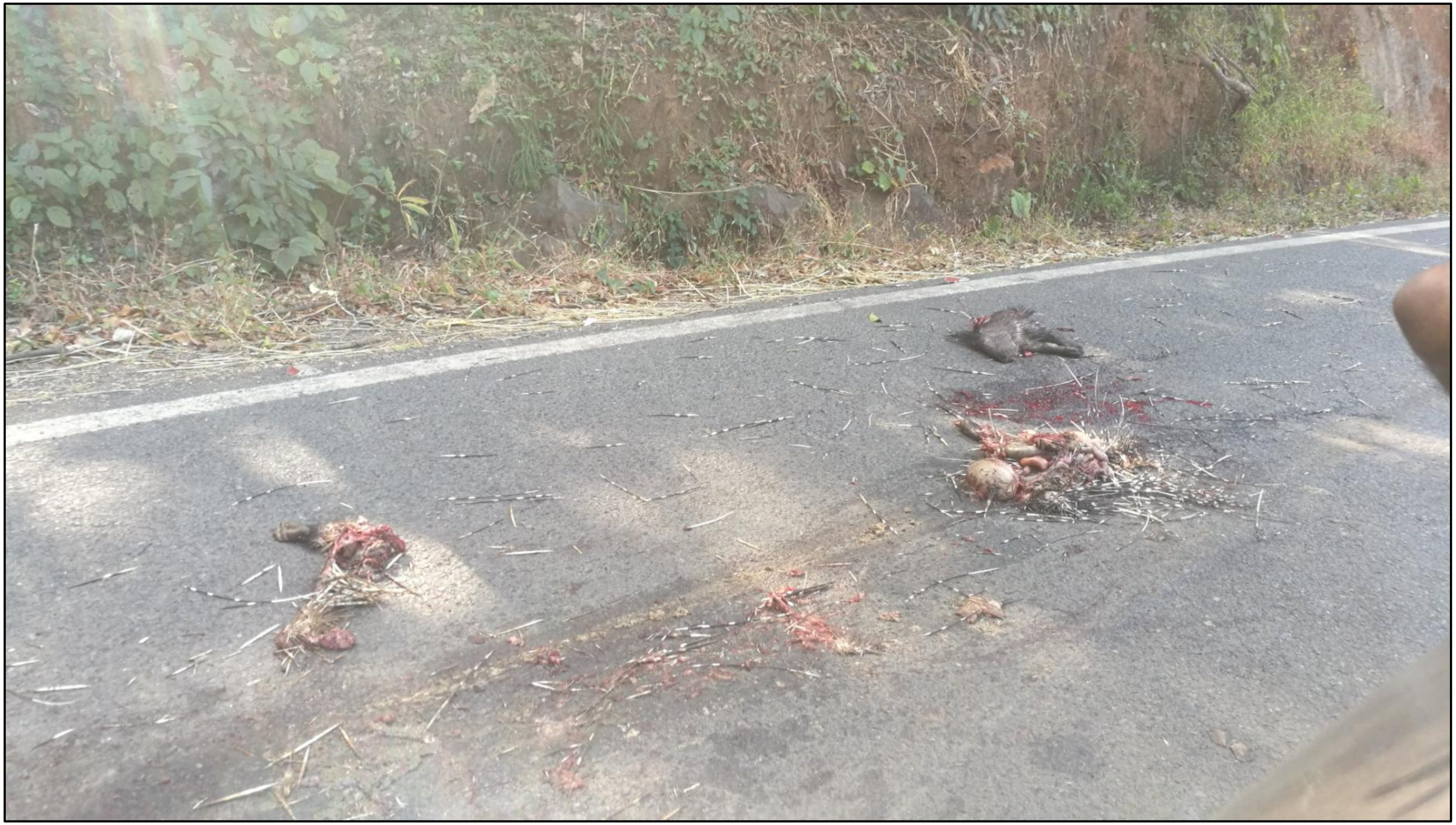
1. The Joint Secretary, Ministry of Road Transport & Highways, Shipping, Government of India, transport Bhawan, New Delhi.
2. The Joint Secretary, I.A Division, MoEF&CC
3. The Inspector General of Forests (FC), MoEF&CC
4. The Principal Chief Conservator of Forests (WL), all States/Union Territories
5. The Chief Wildlife Warden, all States/Union Territories

MSrivastava

(M.L. Srivastava)
Deputy Inspector General of Forests (WL)

Annexure 26

Photograph of an animal killed by vehicles on NH 4 A



Annexure 27

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग
Power System Planning & Appraisal-I Division

सं.: के.वि.प्रा./26/3/PSPA-I/2017/ 491-492 दिनांक: ~~14~~.06.2017 15

सेवा में / To

CEO, PFCCL,
First Floor, "Urjanidhi",
1, Barakhamba Lane, Connaught Place,
New Delhi-110001

विषय : विद्युत अधिनियम, 2003 की धारा 68(1) के तहत **M/s Goa-Tamnar Transmission Project Limited** को योजना "Additional 400 kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool" के लिये भारत सरकार का पूर्व अनुमोदन – सम्बंधित

Sub: Prior approval of the Government of India under section 68(1) of the Electricity Act, 2003 to **M/s Goa-Tamnar Transmission Project Limited**, an SPV for the scheme "Additional 400 kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool" - reg.

संदर्भ / Reference: PFCCL's letter no. 03/ITP-24/17-18/GTTPL dated 12.05.2017

Sir / Madam,

Reference is invited to the letter under reference, seeking prior approval of Government of India under Section 68(1) of Electricity Act, 2003, in favor of M/s Goa-Tamnar Transmission Project Limited, an SPV for the transmission scheme "Additional 400 kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool", with following scope of work:

A. Additional 400 kV feed to Goa

Scope:

i. LILO of one ckt. of Narendra (existing) – Narendra (New) 400 kV D/C quad line at Xeldem
ii. Xeldem – Mapusa 400 kV D/C (quad) line
iii. Xeldem – Xeldem (existing) 220 kV HTLS D/C line (ampacity equivalent to twin moose conductor)
iv. Establishment of 400/220 kV substation at Xeldem

15/6/2017

400 kV

- ICTs: 2x500 MVA, 400/220 kV
- ICT bays: 2 nos
- Line bays: 4 nos (2no. for Xeldem – Mapusa 400 kV D/C (quad) line & 2 nos for LILO of one ckt of Narendra (existing) – Narendra (New) 400 kV D/C quad line at Xeldem)
- Bus Reactor: 1x125 MVAR
- Bus Reactor Bay: 1 no
- Space for 2x500 MVA, 400/220 kV ICTs (future)
- Space for ICT bays (future): 2 nos
- Space for Line bays along with Line Reactors (future): 4 nos
- 1x63 MVAR switchable line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (existing) – Xeldem 400 kV line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/C quad line) at Xeldem)
- 1x80 MVAR switchable line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (New) –Xeldem 400 kV (quad) line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400 kV D/C quad line) at Xeldem

220 kV

- ICT bays: 2 nos
- Line bays: 6 nos
- Space for ICT bays (future): 2 nos
- Space for Line bays (future): 6 nos

B. Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool

Scope:

i. Dharamjaygarh Pool Section B - Raigarh (Tamnar) Pool 765 kV D/C line

2. The above transmission scheme with its specified scope of work, has been agreed in 39th & 40th meeting of Standing Committee on Power System Planning of Western Region held on 30.11.2015 & 01.06.2016. Subsequently, the scheme has been recommended for implementation through TBCB route in 36th meeting of Empowered Committee on Transmission held on 26.07.2016.

3. CEA conveys the prior approval of Government under Section 68(1) of Electricity Act, 2003 to M/s Goa-Tamnar Transmission Project Limited for the scheme "Additional 400 kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool" with above scope of work.

4. This approval is subject to compliance of

a) The relevant provisions of the Act, as amended from time to time and the rules and regulations made there under, and

b) CEA (Measures relating to Safety and Electrical Supply) Regulations, 2010 and any subsequent amendments made thereto.

15/6/2017

5. The approval is also subject to the following conditions:
   (i) The implementing agency will commence construction of the project within three years of grant of approval, unless this term is extended by the Central Electricity Authority.
   (ii) Central Electricity Authority may withdraw the approval before the expiry of the period of three years after giving a one-month notice.
   (iii) The implementing agencies shall abide by the provisions of Works of Licensee Rules, 2006 notified by the Govt. of India, Ministry of Power in the Gazette of India, extra-ordinary Part-II, Section 3(i) dated 18-04-2006 (vide GSR 217 (E) dated 18-04-2006).
   Provided that "nothing contained in this rule shall effect the powers conferred upon any licensee under section 164 of the Act".

भवदीय / Yours faithfully,

15/1/2017

(पी. सी. कुरील / P.C. Kureel)
सचिव / Secretary, के.वि.प्रा / CEA

प्रति लिपि / Copy to: -

(i) Joint Secretary (Trans), Ministry of Power, Shram Shakti Bhawan, New Delhi.

Nitin Agrawal
GOA TAMNAR TRANSMISSION PROJECTS LIMITED
PANJIM

Annexure 28

Wild Life Report

Form for seeking recommendation of Standing Committee of NBWL/SBWL.

PART - I & II

(To be filled up by User Agency)

A. General Details

A1. Project Details

(i). Forest Clearance Required?: Yes
(a).Forests Clearance Type : Fresh
(ii). Proposal No. : FP/GA/TRANS/35354/2018
(iii). Name of Project: Goa-Tamnar Transmission Project Limited
(iv). Short narrative of the Project : Diversion of Forest land for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem under North Goa Forest Division in Goa State.
(v). State : Goa
(vi). Category of the Project : Transmission Line
(vii). Shape of project land : Linear
(viii). Distance of the project from the boundary of the Protected Area (in km.): 0
(ix). Estimated cost of the Project(Rupees in lacs) : 58.2
(x). Total period for which clearance is required (in year): 35
(xi). Total Project Area(in ha.): 75.122
(xii). Area of Forest Land required for this Project(in ha.): 48.3
(xiii). Non-Forest Land required for this Project (in ha.): 26.822
(xiv). Forest Land within Protected Area(in ha.): 11.54
(xv). Non-forest Land within Protected Area (in ha.): 0
(xvi). Project Area under Protected Area(in ha.): 11.54
(xvii). Project Area under Non-Protected Area (in ha.): 63.582
(xviii). Project Area inside Wildlife Sanctuaries(in ha.): 11.54
(xiv). Project Area outside Wildlife Sanctuaries(in ha.): 63.582
(xv). Project Area inside Conservation Reserve(in ha.): 0
(xvi). Project Area outside Conservation Reserve(in ha.): 0
(xvii). Project Area inside National Park(in ha.): 0
(xviii). Project Area outside National Park(in ha.): 0
(xix). Project Area inside Ecologically Sensitive Zone(in ha.): 0
(xx). Project Area outside Ecologically Sensitive Zone(in ha.): 0

A2. Details of User Agency

(i). Name : GOA TAMNAR TRANSMISSION PROJECT LIMITED
(ii). Address1 : F1 Mira Corporate Suite, Main Mathura Road, Ishwar Nagar,New Delhi-110065
(iii). Address2 : NIL
(iv). State : Delhi
(v). District : South
(vi). Pin : 110065
(vii). Landmark : Okhla Raiway Station
(viii). Email address : nitin.agrawal@sterlite.com

(ix). Landline Telephone No. : 49962227
(x). Fax No. : NIL
(xi). Mobile No. : 9717991096
(xii). Website (if any) : NIL
(xiii). Legal status of User Agency : Private

A3. Details of Person Making Application

(i). First Name: Nitin
(ii). Middle Name: NIL
(iii). Last Name: Agrawal
(iv). Gender: Male
(v). Designation: Manager
(vi). Address 1: F1 Mira Corporate Suites, Main Mathura Road, Ishwar Nagar, New Delhi-110065
(vii). Address 2: NIL
(viii). State: Delhi
(ix). District: South
(x). Pin: 110065
(xi). Landmark: Okhla Railway Station
(xii). Email Address: nitin.agrawal@sterlite.com
(xiii). Landline Telephone No.: 49962227
(xiv). Fax No.: NIL
(xv). Mobile No.: 8208007975
(xvi). Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: Annexure copy of documents in support of the competence

B. Details of Land required for the Project

B1. Details of Protected Area

B-1.1 No. of Divisions involved in Protected Area

Division wise details of land			
S.no	**Division Name**	**Protected Area Name**	**Project Area under Protected Area**
1.	Wildlife - North	Bhagwan Mahaveer Wildlife Sanctuary	11.54

B-1.2 Details of Districts involved

District wise breakup

S.no	District Name	Project Area under Protected Area(ha.)	Project Area under Non-Protected Area(ha.)
1.	South Goa	11.54	63.582

B-1.3 Component wise breakup

Component wise breakup

S.no	Component	Project Area under Protected Area(ha.)	Project Area under Non-Protected Area(ha.)
1	Transmission Line	11.54	63.582

C. Maps of protected area

Division 1. : Wildlife - North

(i). Project Area under Protected Area (in ha.) : 11.54

(ii). Nature of the Project : Linear

(iii). No. of Segments : One

Patch/Segment wise details

Segments	Protected Area of segment(in ha.)	KML file of protected area of segment
1.	11.54	View File

(iv). copy of Survey of India Toposheet indicating boundary of protected area: Annexure Survey of India Toposheet

(v). scanned copy of the Geo-referenced map of the protected area prepared by using DGPS or Total Station: Annexure scanned copy of the Geo-referenced map

D. Justification for locating the Project in protected area and details of alternates examined :

(i). copy of note containing justification for locating the Project in protected area: Annexure Justification

(ii). Whether a copy of map indicating location of alternative examined is required to be provided: Yes

(a). copy of map indicating location of alternative examined: Annexure alternative examined

E. Employment likely to be generated

(i). Whether project is likely to generate employment ?: Yes

(a). Permanent/Regular Employment(Number of persons): 36

(b). Temporary Employment(Number of person-days): 12600

F. Displacement of People due to the project, if any

(i). Whether project involve displacement?: No

G. Status of Environmental clearance

(i). Whether the Project requires Clearance under the Environment (Protection) Act 1986 ? : No

H. Whether proposal is for investigation/survey

(H2). Details of the Bio diversity Impact Assessment report in case the proposal involves use of more than 50 ha. NP/WLS.

(a).Copy of the Bio diversity Impact Assessment report: Annexure Copy of Bio diversity Impact Assessment report

(H3). Information on the projects undertaken by the proponent agency in the past in Protected Areas

(a).Upload file: Annexure Information on the projects undertaken by the proponent agency in the past in Protected Areas

(H4). Details regarding compliance of the conditions on each proposal

(a).Upload file: Annexure Details regarding compliance of the conditions on each proposal **(H-5).Whether any matter related to the project is sub judice in any court of law?:** No

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
1	Additional Info.	Reply of EDS raised by DCF, Wildlife North
2	Additional Info.	EDS reply regarding corridor demarcation.
3	Additional Info.	Certified copy of Surla Village map under Wild life Sanctuary
4	Additional Info.	Ministry of Power approval under Section 68
5	Additional Info.	Work Order copy from PFC(Power Finance corp)
6	Additional Info.	Necessary

		Undertakings
7	Additional Info.	Layout Map of Proposed TL under Protected Area
8	Additional Info.	Form I and XIV of Wild Life Area
9	Additional Info.	Route Approval from Cheif Wild life Warden

Government of Goa
Office of Principal Chief Conservator of Forests
Forest Department
1st Floor, Gomantak Maratha Samaj Bldg;
Panaji Goa – 403 001

Ph.No. 0832-2225926
"Swach Bharat Nital Goem"
Towards greener and cleaner Goa
Fax: 0832-2224747/2421414
Email: dcfps-forest.goa@nic.in

No.2-10-WL-BMWLS-FD-Vol.IV/ 2219

Date:- 02.08.2018
Sravana 11,1940 [SAKA]

To,
Shri Nitin Agarwal,
Manager-Forest & Wildlife,
Goa-Tamnar Transmission Project Limited,
F-1, The Mira Corporate Suites,
1 & 2 , Ishwar Nagar, Mathura Road, Delhi-65.

Sub:- Request for route approval of 400 kV Xeldem - Narendra transmission line for processing the wildlife clearance proposal of Bhagwan Mahaveer Wildlife Sanctuary to establish transmission system for "Additional 400 kV feed to Goa State Additional System for power evacuation from generation projects pooled at Raigarh (Tamnar) pool".

Sir,

With reference to your letter No.STL/GRID5/GTTPL/17-18/17 dated 17.05.2018 on the above cited subject, I am directed to inform you to submit the proposal for wildlife clearance and Forest Conservation Act, 1980 clearance for Route No.1 for the proposed laying of transmission line passing through Bhagwan Mahavir Wildlife Sanctuary, Mollem.

Yours faithfully,

Dy. Conservator of Forests
Planning & Statistics

Copy to:-

The Dy. Conservator of Forests (Wildlife & Eco-tourism) North, Panaji – Goa for information and necessary action.

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

सत्यमेव जयते

Certificate No.	: IN-DL03081253762457Q
Certificate Issued Date	: 21-Mar-2018 03:40 PM
Account Reference	: IMPACC (IV)/ dl823503/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DLDL82350309613026716018Q
Purchased by	: GOA TAMNAR TRANSMISSION PROJECT LIMITED
Description of Document	: Article 48(c) Power of attorney - GPA
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: GOA TAMNAR TRANSMISSION PROJECT LIMITED
Second Party	: Not Applicable
Stamp Duty Paid By	: GOA TAMNAR TRANSMISSION PROJECT LIMITED
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)

Please write or type below this line

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS that we **Goa-Tamnar Transmission Project Limited** a company incorporated under the provisions of the Companies Act, 2013 and having its registered office at F-1, The Mira Corporate Suites, 1 & 2 Ishwar Nagar, Mathura Road, New Delhi - 110065, hereinafter called "**the Company**" in exercise of the powers conferred by the Board of Directors vide resolution dated March 16, 2018 and

Statutory Alert:
1. The authenticity of this Stamp Certificate should be verified at "www.shcilestamp.com". Any discrepancy in the details on this Certificate and as available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

Company's Articles of Association and of powers enabling the company in that behalf doth hereby constitute and appoint

Nitin Agarwal - Manager (Projects)
J.K. Thakur - Head (Forest &Wildlife)

(hereinafter called of **"the Attorney OR Attorney's"**) to be the true and lawful Attorney of the Company for and in the name and on behalf of the Company severally to do all or any of the acts and things with respect to **'Additional 400kV feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool'** namely: -

a. To make, sign, modify, file applications, letters and documents to the Forest & Wildlife Departments regarding Forest & Wildlife Clearances for establishing the above said transmission lines under the Forest Conservation Act, 1980 and other forest and wildlife laws and Acts as may be applicable, to complete all administrative and legal formalities in relation to the same.

b. To interact, liaise, represent and deal with the Forest & Wildlife Officials as and when required for the said Forest & Wildlife Clearance for Transmission Lines and obtain all statutory permissions and approvals, if any.

c. To do all such, acts, deeds, matters and things as may be necessary to deal with the Forest and Wildlife authorities for the aforesaid project.

AND IT IS HEREBY DECLARED that the Attorney in exercising the powers hereby conferred on him/them shall confirm to the regulations and directions for the time being imposed on or given to him/them by the Company **PROVIDED ALWAYS** that no person dealing with the Attorney shall be concerned to see or enquire whether he is or is not acting in accordance with such regulations or directions and notwithstanding any breach of such regulations or directions committed by the Attorneys in respect of any deed or instrument the same shall as between the Company and the person dealing with the Attorney be valid and binding on the Company to all intents and purposes.

AND the Company hereby ratifies and confirms and agrees to ratify and confirm whatsoever that shall be lawfully done by the Attorneys under or by virtue of these presents including in such confirmation whatsoever shall be done between the date of revocation hereof and the time of such revocation becoming known to the Attorneys.

Goa-Tamnar Transmission Project Limited

In case any of the Attorney's ceases to be in the employment of the Company, then the rights to such attorney under this instrument will extinguish, forthwith.

This Power of Attorney is valid till the time it is revoked or the employee ceases to be in the employment whichever is earlier.

IN WITNESS whereof this deed has been executed by the Company on April 02, 2018.

For **Goa-Tamnar Transmission Project Limited**

Amitanshu Srivastava
Authorised Signatory

Witness: - BHAVNA ARYA
Deputy Manager

Nitin Agarwal - Manager (Projects)

J.K. Thakur - Head (Forest &Wildlife)

DETAILED PROJECT REPORT AND JUSTIFICATION FOR LOCATING THE PROJECT IN FOREST LAND

(LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)

PROJECT BACKGROUND

The peak demand met by Goa during the year 2014-15 was 489 MW and as per the 18th EPS, the peak demand of 815 MW was expected by the end of 12th Plan (2016-17) and 1192 MW by the end of 13th plan (2021-22). At present demand of Goa is mainly catered through Mapusa 3x315 MVA, 400/220 kV substation, which gets feed from Kolhapur 400 kV substation through a 400 kV D/c line. Goa system is also connected with Maharashtra and Karnataka through 220 kV lines. To supply the projected power requirement of Goa with reliability, an additional 400 kV in feed to Goa was required. The matter was discussed in the 38thmeeting of Standing Committee on Power System Planning in Western Region, held on 17-07-2015 at New Delhi wherein the provision for a new 400kV S/s in Goa at Xeldem along with its interconnections with the Inter State Transmission System was agreed. Accordingly, following transmission system was discussed and approved in the 39th& 40th SCM of WR held on 30.11.2015 & 01.06.2016 respectively and 39th& 40th SCM of SR held on 28-29.12.2015 and 19.11.2016 respectively.

Additional 400kV feed to Goa

LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem.

Xeldem – Mapusa400kV D/c (quad) line.

Establishment of 2x500MVA, 400/220kV substation at Xeldem

Xeldem- Xeldem (Existing) 220 kV HTLS D/C transmission Line

JUSTIFICATION

The construction of LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem is an additional feed to Goa State to meet rising power deficit through present network system. Detail Survey reveals that the proposed line is passing through North Goa Forest Division and Bhagwan Mahaveer Wildlife Sanctuary of Wild life Division, North Goa. Although it has been ensured that the involved forest and wildlife area is minimum & unavoidable.

To optimize the forest and wildlife area involvement, we have carried out 3 possible alternate routes. Details & comparative statement of all 3 alternate routes are shown as below: -

Comparative Statement of three alternative routes			
Description	**Alternate Route 1 (Proposed Route)**	**Alternate Route 2**	**Alternate Route 3**
Bee Line Length	10.348 Km	10.348 Km	10.348 Km
Line Length	16.331 Km	11.895 Km	12.692 Km
Angle Points	16	13	18
Forest Length	7.99 Km	3.365 Km	4.315 Km
Wildlife Length	2.51 Km	7.922 Km	6.707 Km
Total Forest & WL Length	**10.50 Km**	**11.287 Km**	**11.022 Km**
Forest Area (Ha)	36.76 Ha	15.48 Ha	19.85 Ha
Wildlife & NP Area	11.54 Ha	36.44 Ha	30.85 Ha
Total Forest & WL Area	**48.30 Ha**	**51.92 Ha**	**50.70 Ha**
Density of Forest Area	Moderate Dense	High Dense	Moderate Dense

This transmission line would strengthen our Grid network in Western Network system. The construction of this line is challenging due to the presence of hilly terrain, dense vegetation, approachability issues along with other local issues. But as we are living with our core value of empowering humanity by addressing the toughest challenge of energy delivery.

The route alignment survey has been started from Xeldem S/s (Proposed), Sangod, District

South Goa. We have had a detailed study for three possible alternate routes and the observations after detailing are given as follows:-

- **Route-1** starts from Substation at Sangod, passing from Tamdi Surla till Karnataka Border and encounters Forest area of 7.99 Km(Notified Forest Area) and 2.51 Km of Bhagwan Mahavir Wild Life Sanctuary.
- **Route-2** encountered Reserved/Protected Forest 3.365 Km and an area of 7.922 Km of Bhagwan Mahavir Wildlife Sanctuary and National Park. It has also observed that the tree density in this route is high resulting more tree felling required during construction.
- **Route-3** intersects the more patches of Forest and Wildlife/ National Park area.

Hence after comparing all three routes it has clearly evolves that the Route-1 is more suitable in respect of Route-2 and Route-3. Additionally this route has fully avoided nearby National Park area. Tree density in Route-1 is also less comparing to Route-2 and Route-3. Considering all the negative impact in respect of Forest and Wildlife area, Route-1 has chosen for further diversion purpose and also ensure to made all necessary measures to reduce forest and wildlife damage due to this development project.

LEGAL FRAMEWORK

The Prior approval of the Government of India under Section 68 of the Electricity (Supply) Act, 2003 for the subject project has been obtained vide MoP’s letter dated 15.06.2017. It is proposed to execute the transmission scheme as provision contained in the Indian Electricity Act, 2003 and the rules made there under and the Electricity (Supply) Act,1910 and 1948, in so far as these are applicable.

ENVIORNMENTAL RISK

Transmission line Projects are environment friendly and do not involve any disposal of solid effluents and hazardous substance in land, air and water. Moreover, forest area trees are felled below each conductor to facilitate stringing. On completion of construction only one strip is maintained for O & M purpose. Therefore, the actual loss of forest is restricted to some selected area only. However, as per the requirement of Forest (Conservation) Act, 1980 approval of Ministry of Environment & Forest, Govt. of India for diversion of forest land shall be taken before construction of line in forest area. Further, compensatory afforestation shall be done in double the degraded forest land to compensate the loss of vegetation, due to diversion of forest.

Nitin Agarwal

GOA-TAMNAR TRANSMISSION PROJECTS LIMITED
PANJIM

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

UNDERTAKING OF COMPENSATORY AFFORESTATION

We hereby undertake that the cost of raising & maintaining compensatory afforestation and/or penal compensatory afforestation as well as cost for protection and regeneration of Safety zone etc. as per the scheme prepared by the State Government i.e. Double of degraded forest land against 11.54 ha of forest land diversion proposal of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem of Bhagwan Mahaveer Wildlife Sanctuary shall be borne at the cost of Goa-Tamnar Transmission Project Limited.

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

UNDERTAKING OF FRA CERTIFICATE

We, Goa-Tamnar Transmission Project Limited hereby undertake to provide the FRA Certificate for the settlement of rights under Schedule Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 in the format of Form-I as prescribed by Ministry of Environment and Forest (*Notification F.No. 11-9/98-FC(pt.) dated 15th January, 2014*).

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

CERTIFICATE FOR MINIMUM USE OF FOREST LAND

This is to certify that, for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem the proposed 11.54 ha of Bhagwan Mahaveer Wildlife sanctuary area is unavoidable and barest minimum.

Nitin Agrawal

GOA-TAMNAR TRANSMISSION PROJECTS LIMITED
PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon,
DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

UNDERTAKING of NPV

This is to certify that, the Net Present Value of the 11.54 ha forest land proposed for wildlife clearance for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem under Wildlife (Protection) Act 1972, shall be borne by **Goa-Tamnar Transmission Project Limited.** We also hereby undertake to pay the additional amount of NPV, if so determined as per the decision of Hon'ble Supreme court.

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.
Sterlite Power

UNDERTAKING IN RESPECT OF ESTABLISHMENT OF LABOUR CAMP

This is to certify that, during construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem, the work shall be carried out in the notified wildlife area of Goa Forest department. However, it is ensured that no labour camp shall be established in wildlife area.

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

UNDERTAKING OF DWARF PLANTATION

We hereby undertake that, the cost of dwarf plantation beneath the transmission line as per the scheme prepared by State Government against diversion of 11.54 ha of wildlife area for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem shall be bourn by Goa-Tamnar Transmission Project Limited.

Nitin Agrawal

GOA-TAMNAR TRANSMISSION PROJECTS LIMITED
PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

UNDERTAKING of SURVEY WORK BY DGPS

This is to certify that, the survey work of entire LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem have been carried out by Differential Global Positioning System (DGPS).

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon,
DB Marg Miramar, Panjim, North Goa
Goa- 403001

LENGTH AND WIDTH OF TRANSMISSION LINE PASSING THROUGH FOREST AND NON FOREST AREA.

S.NO.	TYPE OF LAND	LENGTH IN KM.	ROW IN METRE	AREA IN HA	NO. OF ANGLE POINTS
1	FOREST	7.990	46	36.76	10
2	WILD LIFE	2.510	46	11.54	03
2	NON-FOREST	5.831	46	26.822	03
TOTAL		**16.331**	**46**	**75.122**	**16**

Nitin Agrawal

PANJIM

Date: 17.08.2018

Place: Panaji

Signature :

Name in Block Letter : NITIN AGRAWAL

Designation : **Manager**

Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

STATEMENT SHOWING DETAILS OF FOREST AREA PROPOSED FOR DIVERSION

Sr No	Wildlife Division	Type of Forest	Survey Number	Forest Area Proposed for Diversion (ha)	Remarks
1.	**2.**	**3.**	**4.**	**5.**	**6.**
1	**North Goa**	Wildlife Area	23 & 73	11.54 Ha	
TOTAL WILDLIFE AREA				**11.54 Ha**	

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

STATEMENT SHOWING DETAILS OF NON FOREST AREA INVOLVED IN THE PROPOSAL

Sr No	District	Forest Division	Non-Forest area involved in the proposal (ha)	Present land use.	Remarks
1.	2.	3.	6.	7.	8.
1.	South Goa	Wildlife Division North	0.00 Ha		
		Total Non-Forest Area	**0.00 Ha**		

Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.
Sterlite Power

CERTIFICATE OF NON-VIOLATION OF Wildlife (Protection) Act 1972

This is to certify that, no violation has been occurred for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem in proposed Wildlife area of 11.54 ha area under Wildlife (Protection) Act 1972

Nitin Agrawal

PANJIM

Date: 17.08.2018 **Signature** :
Place: Panaji **Name in Block Letter** : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

Goa- Tamnar Transmission Project Limited,
A2/2, Second Floor, New Horizons, DB Marg, Miramar, Panjim, Goa.

Sterlite Power

HISTORICAL/ARCHAEOLOGICAL PLACES CERTIFICATE

This is to certify that, proposed LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem does not affect any monuments of historical, religious, archaeological or recreational importance including wildlife sanctuary and national park etc.

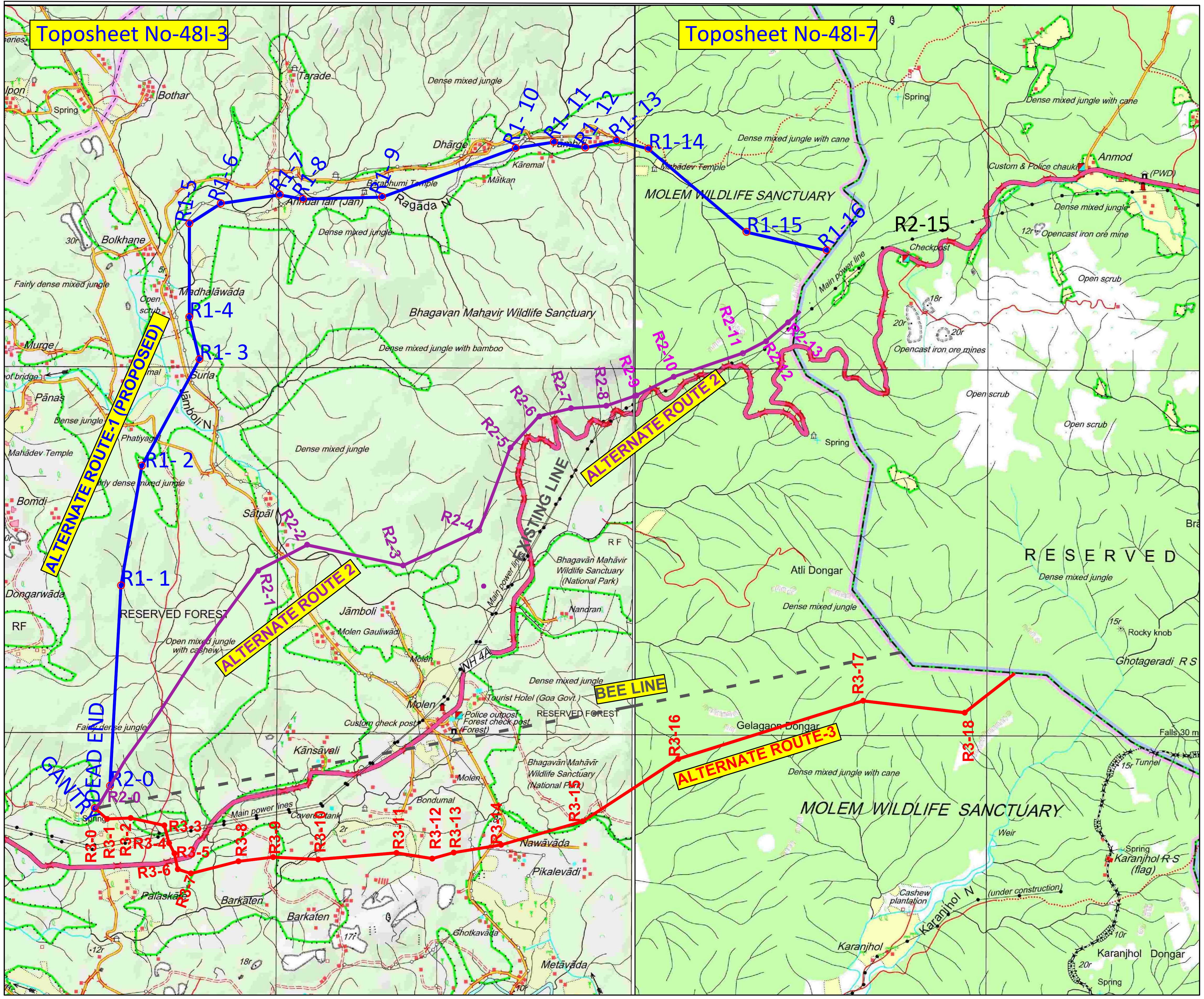
Nitin Agrawal

PANJIM

Date: 17.08.2018
Place: Panaji

Signature :
Name in Block Letter : NITIN AGRAWAL
Designation : **Manager**
Address of Agency : Goa- Tamnar Transmission Project Limited, A2/2, 2nd Floor, New Horizon, DB Marg Miramar, Panjim, North Goa
Goa- 403001

ALTERNATE ROUTE MAP EXAMINED FOR PROPOSED LILO OF ONE CKT OF NARENDRA (EXISTING)-NARENDRA (NEW) 400KV D/C QUAD LINE AT XELDEM


Toposheet No-48I-3
Toposheet No-48I-7
ALTERNATE ROUTE-1 (PROPOSED)
ALTERNATE ROUTE 2
ALTERNATE ROUTE 2
ALTERNATE ROUTE-3
EXISTING LINE
BEE LINE
GANTRY
DEAD END
R1- 1
R1- 2
R1- 3
R1-4
R1-5
R1-6
R1-7
R1-8
R1-9
R1- 10
R1- 11
R1- 12
R1- 13
R1-14
R1-15
R1-16
R2-0
R2-1
R2-2
R2-3
R2-4
R2-5
R2-6
R2-7
R2-8
R2-9
R2-10
R2-11
R2-12
R2-13
R2-15
R3-0
R3-1
R3-2
R3-3
R3-4
R3-5
R3-6
R3-7
R3-8
R3-9
R3-10
R3-11
R3-12
R3-13
R3-14
R3-15
R3-16
R3-17
R3-18
MOLEM WILDLIFE SANCTUARY
Bhagavan Mahavir Wildlife Sanctuary
MOLEM WILDLIFE SANCTUARY
RESERVED
RESERVED FOREST
Tarade
Bothar
Dhārge
Kāremal
Mātkan
Ragada N
Bolkhane
Madhalāwāda
Murge
Pānas
Surla
Mahādev Temple
Bomdi
Dongarwāda
Sātpāl
Jāmboli
Molen Gauliwādi
Molen
Kānsāvali
Nandran
Tourist Hotel (Goa Govt.)
Police outpost Forest check post (Forest)
Custom check post
Bondumal
Nawāvāda
Pikalevādi
Palaskati
Barkaten
Shotkavāda
Metāvāda
Atli Dongar
Gelagaon Dongar
Checkpost
Anmod
Custom & Police chauki
Opencast iron ore mine
Opencast iron ore mines
Open scrub
Dense mixed jungle
Dense mixed jungle with cane
Dense mixed jungle with bamboo
Main power line
Rocky knob
Ghotageradi R S
Karanjhol
Karanjhol R S (flag)
Karanjhol Dongar
Karanjhol N
Cashew plantation
Spring
NH 4A

Comparative Statement of Three Alternative Routes			
Description	Alternate Route 1 (Proposed Route)	Alternate Route 2	Alternate Route 3
Bee Line Length	10.348 Km	10.348 Km	10.348 Km
Line Length	16.331 Km	11.895 Km	12.692 Km
Angle Points	16	13	18
Forest Length	7.99 Km.	3.365 Km.	4.315 Km.
Forest Area (Ha)	36.76 Ha.	15.48 Ha.	19.85 Ha.
Wild Life & National Park Length	2.51 Km.	7.922 Km.	6.707 Km.
Wild Life & National Park Area (Ha)	11.54 Ha.	36.44 Ha.	30.85 Ha.
Total length	10.5 Km.	11.287 Km.	11.022 Km.
Total Area (Ha.)	48.3 Ha.	51.92 Ha.	50.7 Ha.
Density of Forest Area	Moderate Dense	High Dense	Moderate Dense

LEGEND

🟦	PROPOSED ROUTE-1
🟪	ALTERNATIVE ROUTE-2
🟥	ALTERNATIVE ROUTE-3

N

USER AGENCY: GOA -TAMNAR TRANSMISSION PROJECT LIMITED

Scale:-1:50000

LEGEND

🟦	Alternate Route 1(Proposed)
🟪	Alternate Route 2
🟥	Alternate Route 3
- - -	B-Line
●	Angle Points
46m.	ROW (Right of Way)

Sheet No.- 1 of 1

PANJIM

GOVERNMENT OF GOA

DIRECTORATE OF SETTLEMENT & LAND RECORDS

PANAJI - GOA

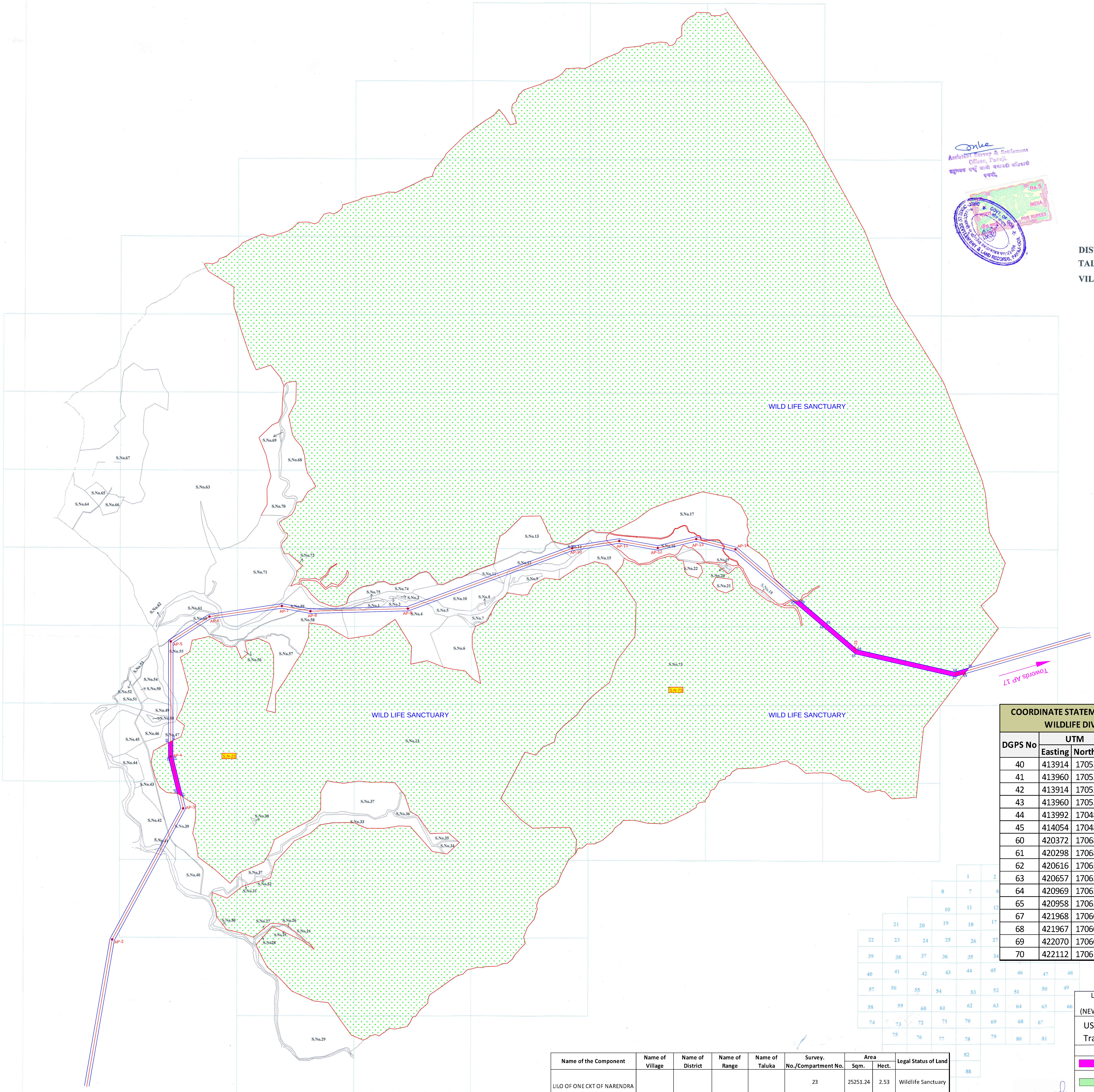
VILLAGE MAP OF SURLA

Assistant Survey & Settlement Officer, Panaji.
सहाय्यक सर्वे आनी जमाबंदी अधिकारी पणजी.

DISTRICT : SOUTH GOA
TALUKA : DHARBANDORA
VILLAGE : SURLA

N

Scale 1:16000


WILD LIFE SANCTUARY
WILD LIFE SANCTUARY
WILD LIFE SANCTUARY
Towards AP 17
S.No.17
S.No.13
S.No.15
S.No.23
S.No.63
S.No.67
S.No.71
S.No.73
S.No.29
AP-2
AP-3
AP-4
AP-5
AP-6
AP-7
AP-8
AP-9
AP-10
AP-11
AP-12
AP-13
AP-14
S.N-23
S.N-73

DGPS No	UTM		Degree, Minute, Second	
	Easting	Northing	Longitude	Latigitude
40	413914	1705355	74°11'51.64"	15°25'25.47"
41	413960	1705379	74°11'53.18"	15°25'26.26"
42	413914	1705204	74°11'51.65"	15°25'20.56"
43	413960	1705210	74°11'53.2"	15°25'20.76"
44	413992	1704836	74°11'54.32"	15°25'8.59"
45	414054	1704821	74°11'56.4"	15°25'8.11"
60	420372	1706810	74°15'28.13"	15°26'13.58"
61	420298	1706811	74°15'25.65"	15°26'13.6"
62	420616	1706542	74°15'36.35"	15°26'4.88"
63	420657	1706567	74°15'37.72"	15°26'5.7"
64	420969	1706299	74°15'48.22"	15°25'57.01"
65	420958	1706257	74°15'47.86"	15°25'55.65"
67	421968	1706025	74°16'21.77"	15°25'48.21"
68	421967	1706073	74°16'21.73"	15°25'49.77"
69	422070	1706049	74°16'25.19"	15°25'49"
70	422112	1706113	74°16'26.59"	15°25'51.09"

COORDINATE STATEMENT OF REQUIRED AREA OF WILDLIFE DIVISION NORTH GOA

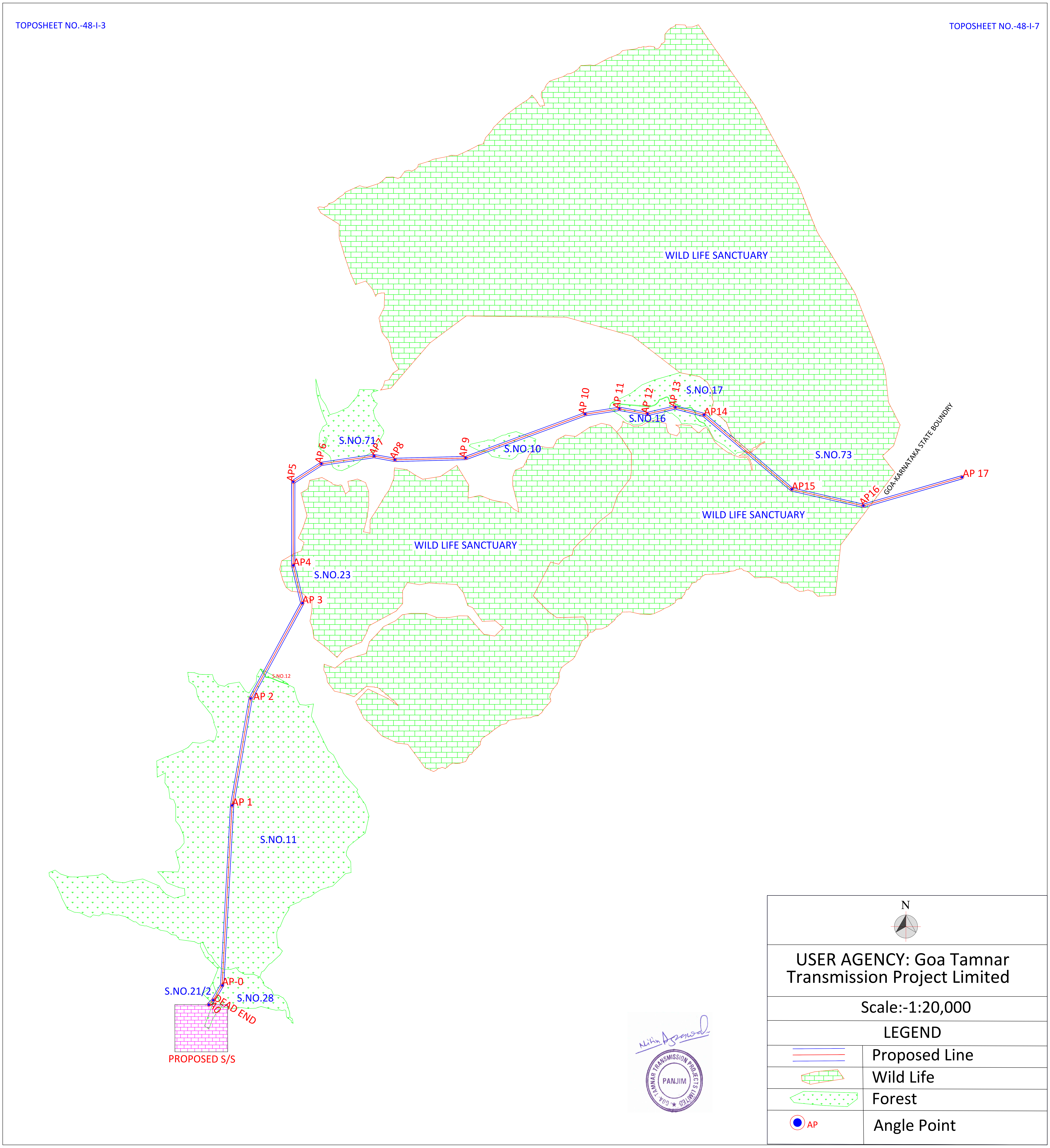
Name of the Component	Name of Village	Name of District	Name of Range	Name of Taluka	Survey. No./Compartment No.	Area		Legal Status of Land
						Sqm.	Hect.	
LILO OF ONE CKT OF NARENDRA (EXISTING) NARENDRA (NEW) 400KV D/C QUAD LINE AT XELDEM TRANSMISSION LINE	Surla	South Goa	Mollem	Dhabandora	23	25251.24	2.53	Wildlife Sanctuary
					73	90146.42	9.01	Wildlife Sanctuary
TOTAL						115397.66	11.54	

LILO OF ONE CKT OF NARENDRA (EXISTING)-NARENDRA (NEW) 400KV D/C QUAD LINE AT XELDEM

USER AGENCY: Goa Tamnar Transmission Project Limited

LEGEND	
🟪	Proposed Wild Life Area
🟩	Wild Life (Bhagwan Mahavir Wild Life Sanctuary)
═	Proposed Line
46m.	ROW (Right of Way)
S.N-	Survey No.
	Scale:-1:16,000

LAYOUT PLAN OF PROPOSED LILO OF ONE CKT OF NARENDRA (EXISTING)-NARENDRA (NEW) 400KV D/C QUAD LINE AT XELDEM


TOPOSHEET NO.-48-I-3
TOPOSHEET NO.-48-I-7
WILD LIFE SANCTUARY
WILD LIFE SANCTUARY
WILD LIFE SANCTUARY
S.NO.17
S.NO.16
S.NO.73
S.NO.71
S.NO.10
S.NO.23
S.NO.12
S.NO.11
S.NO.21/2
S.NO.28
AP-0
AP 1
AP 2
AP 3
AP4
AP5
AP 6
AP7
AP8
AP 9
AP 10
AP 11
AP 12
AP 13
AP14
AP15
AP16
AP 17
GOA-KARNATAKA STATE BOUNDRY
DEAD END
PROPOSED S/S
N

PANJIM

USER AGENCY: Goa Tamnar Transmission Project Limited

Scale:-1:20,000

LEGEND

	Proposed Line
▨	Wild Life
▨	Forest
● AP	Angle Point

Annexure 29

Report Part-III

Form for seeking recommendation of Standing Committee of NBWL/SBWL to be filled by Wildlife Warden (Part-III)

A. General Details

A1. Project Details

(i). Forest Clearance Required?: Yes
(ii). Proposal No. : FP/GA/TRANS/35354/2018
(iii). Name of Project: Goa-Tamnar Transmission Project Limited
(iv). Short narrative of the Project : Diversion of Forest land for construction of LILO of one ckt of Narendra(existing)-Narendra(New) 400 kV D/C quad transmission line at Xeldem under North Goa Forest Division in Goa State.
(v). State : Goa
(vi). Category of the Proposal : Transmission Line
(vii). Shape of project land : Linear
(viii). Estimated cost of the Project(Rupees in lacs) : 58.2
(ix). Total period for which clearance is required (in years): 35
(x). Category of Protected Area: Wildlife Sanctuaries
(xi). Total Project Area(in ha.): 75.122
(xii). Area under Protected Area (in ha.): 11.54
(xiii). Area under Non-Protected Area (in ha.): 63.582

A2. Alternative details uploaded by User Agency

Alternative details uploaded by User Agency	
Yes	Uploaded file

A3. Bio diversity Impact Assessment Report uploaded by User Agency

<td
</td

(i).Bio diversity Impact Assessment Report uploaded by User Agency: :NA

A-4. Details of division

Division 1. : Wildlife - North
(i). Total Area of the Protected Area (in ha.): 11.54
(ii). Upload copy of Conservation value of the Protected area: Annexure Survey of India Toposheet
(iii). Comments on the proposal with reference to the alternatives considered: There is no alternative
(iv). Comments on the Bio diversity Impact Assessment Report: NA

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification:

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification

S.no	Name of project	User Agency	Year	Area Diverted/ Permitted for use(ha.)	
1.	LILO of one ckt of Narendra (existing)-Narendra (Ne	Goa Tamnar Transmission Project Ltd.	2018	Wildlife - North	

Impact (s)due to the diversion of area for the use of land for the projects referred above:

Impact(s)due to the diversion of area for the use of land for the projects referred above

S.no	Name of project	Upload impact report	Area Diverted / Permitted for use		
1.	LILO of one ckt of Narendra (existing)-Narendra (Ne	Annexure Upload impact report	11.54		

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980:

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980

S.no	Under Act	Name of Project	Details of violation	Period of work done	Area of forest land involved in violation	Name of person(s) responsible for violation	Designation & Address of person(s) responsible for violation	Action taken against the person(s) responsible for violation	

Any other information that you would like to place on record for decision making:

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
NIL		

(v). Provide comprehensive details of the likely impact of the current proposal in terms of sections 29 and/or section 35(6) of the Wildlife(Protection)Act, 1972 : Annexure Comprehensive letter

(vi).Has any work related to the project proposed been commenced at the proposed location : No

A5 Site inspection report of the Wildlife Warden/Chief Wildlife Warden highlighting important facts pertaining to the forest land

Division Name	**Circle**	**Site inspected By**	**Whether site inspected**	**No. of times site visited**	**Site inspection report**	**Date of visit**
Wildlife - North	Wildlife and Ecotourism	DFO		One	PDF	06/07/2019

(Specific recommendation of the Wildlife Warden/Chief Wildlife Warden with(Part II & III))

A-6 Specific recommendation of the Wildlife Warden/Chief Wildlife Warden for acceptance or otherwise of the proposal with reason

Division	**Circle**	**Recommendation By**	**Recommendation**	**Reason**	**Letter**	**Whether CF agreed**
Wildlife - North	Wildlife and Ecotourism	DFO	Recommended	The proposal is of public interest & public utility	PDF	

IMPACT OF CURRENT PROPOSAL AND REMARKS :

M/s Goa –Tamnar transmission Project Ltd , Panaji-Goa has proposed laying of LILO of one ckt 400 kV Xeldem - Narendra transmission line that passes through Bhagwan Mahaveer Wild Life Sanctuary, Mollem . The line is passing through the PA in a strip of dimension would be approx. 3.415 kms in length and 46 Mtr width. Total Area sought for diversion is 11.54 ha. of Wildlife sanctuary area in proposal by the user agency . The land is laterite in nature with pristine thick evergreen forest comprises of tall lofty trees with canes covered with ground bush vegetation having canopy density is more than 0.8.

Lying of transmission line in this PA will be going to cause disturbance in the landscape, disrupt rich biodiversity and further fragment habitat of an important wildlife refuge and corridor of the state.

This project will involve felling of more than 4146 no. of trees and 985 cane clump as per valuation report and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds and exotic species that out-compete native plants and lead to alter animals' use of habitats. Also during actual execution of works such as felling and transportation of forest produce from site may cause severe impact of disturbance to wildlife of that particular area in the form of noise and loss of habitat. Further, there will be every possibility to form rills and gullies resulting in to increase in soil erosion during rainy season resulting in damage to vegetation and siltation of perennial rivulets 'Ragada' exist in area.

In addition to this changes may occur in ecological and ecosystem process such as pollination, seed dispersal and carbon storage. The demarcated strip area proposed to be acquired is having steep as well as gentle slope and there are every possibilities to cause severe damage to fragile forest ecosystem by soil erosion and landslides at steep portion , degrade soil quality, and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people from Surla, tambdi, Sacorda village depends.

Scanned by CamScanner

The user agency has agreed to cut minimum trees requirements and to adopt wildlife-friendly mitigation measures, however there may not be possible to prevent damage cause to biodiversity of that particular area.

Further on completion of this project, the faunal Spp will not get directly affected by obstructing their free movement. Also, trees listed for felling under this project will be compensated in long term through the proposed compensatory afforestation Programme covering double the degraded forest land.

Scanned by CamScanner

Recommendations:

As the terrain is undulating with heavy rainfall and gradient above 30′. The construction activities are highly vulnerable to soil erosion as such all precaution measures are to be taken to control soil erosion and washout of soil in the forest streams. The precautions are to be taken in respect to soil erosion by construction of rubble wall bandaras across the counter lines so that soil should not wash away and soil erosion in controlled. The User Agency should not allow camping of labour force within the Wildlife Sanctuary area. The high extension line pillars should be guarded so that wild animals should not have contact with the line causing casualty sagging of live line and touching to tree canopy should be avoided so that it should not result in Wildlife casualty. User Agency should follow all guidelines for safety of wildlife. Considering all this recommendation as the proposal is of importance to the state economy, the proposal is recommended.

Dy. Conservator of Forests
Wildlife & Eco- tourism (N)

PART - II (B)

(To be filled by concerned Deputy Conservator of Forests)

State Serial No. of Proposal No. FP/KA/RAIL/34288/2018

3	Location of the Project/Scheme	Devalli village F.S. No. 04/A1/A1/A1/A1/A1, Devalli Survey No. 10A, Devalli Survey No. 04, Devalli Survey No. 10B, Konsheth Survey No. 7/1A of Tinaighat Range of Joida Taluk in Haliyal Forest Division.
i)	State	Karnataka State.
ii)	District	Uttara Kannada.
iii)	Forest Division.	Haliyal Forest Division.
iv)	Area of Forest land proposed for diversion (in Ha)	0.88 ha.
v)	Legal status of Forest	Reserve Forest notification No. 15F/1-3/1879. Published in Bombay Gazette.
vi)	Density of Vegetation	62 %– 80% Evergreen Forest.
vii)	Species-wise (Scientific names) and diameter class-wise enumeration of trees in unbroken area.	Enumeration list is enclosed, Total 181 trees felling is required.
viii)	Whether forms part of National Park, Wildlife Sanctuary, biosphere reserve, tiger reserve, elephant corridor etc. (If so, the details of the area and comments of the Chief Wildlife Warden to be annexed).	It is not a part of National Park, Wildlife Sanctuary, bioshere reserve, tiger reserve, elephant corridor etc.
6	Whether any work in violation of the Act has been carried out (Yes/No). If yes, details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress.	No.
7	Site inspection report of the DCF (to be enclosed) in respect to status of compliance of conditions stipulated during earlier approval.	Enclosed.
8	Division/District Profile	
i)	Geographical area of the division	148004.35 ha.
ii)	Forest area of the division	109792.987 Ha.
iii)	Total area diverted since 1980 with number of cases	259.686. 23 Cases.
iv)	Total compensatory afforestation stipulated in the district/division since 1980 on	
	a) Forest land including penal compensatory	297.960 Ha.
	b) Non-Forest land.	127.120 Ha.
v)	Progress of compensatory afforestation as on date on	
	a) Forest land	297.960 Ha.
	b) Non-forest land.	127.120 Ha.

9	Specific recommendations of the DCF for acceptance or otherwise of the proposal with reasons.	As the project is for the 400 KV Line quad Transmission at Tinaighat, in the interest of Western Ghats and Bio-diversity, **I hereby recommended to reject the proposal of lease for 40.146 Ha of Forest Land,** under section 2 of Forest Conservation Act for the Manager, Goa-Tamnar Transmission Projects Ltd, Dharwad.

Place : Haliyal.

Date : -11-2019.

(D. Yatishkumar,$_{\text{IFS}}$)
Deputy Conservator of Forests,
Haliyal Division, Haliyal.

INSPECTION REPORT

The undersigned inspected the site on 05-10-2019 along with the Assistant Conservator of Forests, Sub-division, Ganeshgudi and Range Forest Officer Tinaighat. The proposed site along with Lilo of 1 CKT of Narendra (Existing) - Narendra (New) 400 KV Line quad transmission at Devalli village F.S. No. 4A, Payaswadi Survey No. 25 of Tinaighat Range of Joida Taluk in Haliyal Forest Division. The site is located in Reserve Forest 74 kms away from Haliyal Town.

The proposed land falls under the Western Ghats and is consisting rare endangered species and is a ever green forests consisting of biodiversity, birds and Medicinal Plants. If permission is given to this project there will be more damage to the entire biodiversity of this area. It affects the total eco system and Western Ghats. It bifurcates the entire landscape. Hence, as per the report and opinion of the Range Forest Officer, Tinaighat and Assistant Conservator of Forests, Ganeshgudi, this project is endangered to the species of the area. Hence, it is requested to reject the proposal for diversion of forest area in this area and the project authority may be informed accordingly.

Place : Haliyal.
Date : -10-2019.

Deputy Conservator of Forests,
Haliyal Division, Haliyal.

SITE INSPECTION REPORT

This is to certify that I have inspected the proposed forest area for diversion of 70.558 hectare forest land in Kali Tiger Reserve Dandeli and Haliyal Divisions for Goa-Tamnar 400 KV Transmission Line LILO Project in favour of Manager (Projects), Goa-Tamnar Transmission Project Ltd, New Delhi on 02-01-2020 along with Assistant Conservator of Forests, Sub Division Ganeshgudi and Range Forest Officer Tinaighat. During the inspection, the following observations were made.

The Proposed land falls under the Western Ghats and is consisting of rare and endangered species and is a Ever - green forests consisting of biodiversity, birds and medicinal plants. If permission is given to this project, there will be more damage to the entire biodiversity of this area. It affects the total eco system and Western Ghats. It bifurcates the entire landscape.

Conservator of Forests and Field Directors Dandeli - Anashi Tiger Reserve, Dandeli also opined that laying of transmission line in the pristine forest areas in Kali Tiger Reserve by clear felling of forest, leads to destruction of tiger habitat and degradation of surrounding forest areas.

Hence as per the report and opinion of the Deputy Conservator of Forests and Field Directors Dandeli - Anashi Tiger Reserve, Dandeli and Deputy Conservator of Forests, Haliyal Division Haliyal, this project is detrimental to the forest area. Hence, it is requested to reject the proposal and the project authority may be informed accordingly.

D.Yatish Kumar. I.F.S
Chief Conservator of Forests,
Kanara Circle, Sirsi

Date: 12/02/2020.
Place: Sirsi

SITE INSPECTION REPORT

On 19-12-2019, I along with Assistant Conservator of Forests, Anashi Sub-Division, Range Forest Officer, Castle Rock Wildlife Range and field staff and Project site engineers visited the field to inspect the proposed forest area for diversion of forest land for the project "Additional 400 KV feed to Goa State, additional system for power evacuation from generation project pooled at Raigarh (Tamnar) pool".

During the inspection following observation were made:-

1. The proposed project is laying of 400 KV transmission line from existing power grid in Narendra in Dharwad District to Xeldem, in Goa for a length of 94 Km.
2. Out of 94 km, it passes through Karnataka to a length of 72 km and remaining 17 Km in Goa State.
3. Out of 72 Km in Karnataka, 38 Km length of transmission line passes through forests of various divisions and about 6.6 km length passes through forest areas of Kali Tiger Reserve.
4. As per the standards, the total width of the 400 KV transmission line is 46 m and the vegetation clearance has to be carried out in the width of 23m. for entire length.
5. The proposed forest for division for the project is 30.412 ha in Dandeli Wildlife Sanctuary, part of Kali Tiger Reserve. It starts at Jalakatti Nala to Atle forest survey no. 02. It passes through three beats, Anmod west (87A1A), Anmod east (57) and Atle (02) in Castle rock range.
6. Kali Tiger Reserve is part of the Malenad-Mysore Tiger landscape, which extends from the Kali Tiger Reserve, in the North, to the Cauvery Wildlife Sanctuary, in the south.
7. The reserve is situate amidst the Western ghats Natural world Heritage site inscribed by the UNESCO, one of the global biodiversity hotspots.

8. The reserve has a contiguous habitat that is inaccessible and is well connected with the southern and northern forested areas. In the north it is connected to Bhimgarh Wildlie Sanctuary, which is further connected to the Radhanagari and Koyna wildlife sanctuaries of Maharastra. Towards the west, there are protected areas of Goa, ie. Cotigao Wildlife Sanctuary, Netravali Wildlife Sanctuary etc.

9. The reserve harbours rich flora and fauna. It includes tigers, leopard including black panthers, Dholes, bisons, spotted deers, Sambars, Palm civet cat, hornbills and diverse amphibians and reptiles. It also includes rich floristic diversity.

10. This region received about 8000 mm rainfall in the monsoon season of 2019 indicating high rainfall zone and highly fragile to soil erosion. The erosion is severe due to the steep topography.

11. There is already existing 220 KV KPTCL functional line from Ganeshgudi substation to Ponda substation which is about 23m width.

12. As per the proposal, there will be laying of transmission line for a length of about 6.6 Km including 2.6 Km in the existing abandoned 110 KV line of KPTCL, in Kali Tiger Reserve.

13. It was opined that, the laying it 400 KV transmission line to essential to supply of power to Goa State for overall development. But laying of transmission line in the pristine forest areas in Kali Tiger Reserve by clear felling of forest leads to destruction of tiger habitat and degradation of surrounding forest areas.

14. The laying of transmission line, movement of vehicles, machines and machinery, labour camps and destruction of 30.412 ha of forest may lead to irreversible damage to flora and fauna of Kali Tiger Reserve. It causes severe erosion and the wildlife will have serious consequences.

15. The User Agency has also not proposed any mitigation measures.

Because of the serious ecological concerns stated above, I do not recommend the proposed project "Additional 400 KV feed to Goa State, additional system for power evacuation from generation projects pooled at Raigarh (Tamnar) Pool".

19.12.2019

(K.V. VASANTHA REDDY, IFS.,)
Conservator of Forests and Field Directors
Dandeli-Anashi Tiger Reserve, Dandeli.

Annexure 31

F. No. 7-25/ 2012-FC
Government of India
Ministry of Environment and Forests
(FC Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110 510

Dated: 5th May, 2014

To

The Principal Secretary (Forests),
All State / Union Territory Governments

***Sub*:** Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act, 1980- Guidelines for laying transmission lines through forest areas - *reg*.

Sir,

I am directed to say that the Hon'ble National Green Tribunal in their Order dated 7th March 2012 in the Appeal No. 10 of 2012 in the matter of Janajagarithi Samiti (Regd.) versus Union of India and Others directed this Ministry to take steps and notify the detailed fresh guidelines for laying transmission lines through forest area, incorporating necessary changes to mitigate the difficulties which arise during granting forest clearance.

Accordingly, this Ministry in consultation with the Central Electricity Authority formulated revised guidelines for laying transmission lines through forest areas. **A copy of the same is enclosed.**

Yours faithfully,

05/05/2014

(H.C. Chaudhary)
Assistant Inspector General of Forests

***Encl.*:** As above.

Copy along with a copy of the said guidelines to:-

1. Prime Minister's Office (***Kind attn.*:** Shri Santosh D. Vaidya, Director).
2. Secretary, Ministry of Power, Government of India, Shram Shakti Bhawan, New Delhi.
3. Principal Chief Conservator of Forests, all State/UT Governments.
4. Nodal Officer, the Forest (Conservation) Act, 1980, all State/UT Governments.
5. All Regional Offices, Ministry of Environment & Forests (MoEF), Government of India (GoI).
6. Joint Secretary in-charge, Impact Assessment Division, MoEF, GoI
7. All Assistant Inspector General of Forests/ Director in the Forest Conservation Division, MoEF, GoI.

8. Director R.O. (HQ), MoEF, GoI.
9. Sr. Director (Technical), National Informatics Centre (NIC), MoEF with a request to place a copy of the letter on website of this Ministry.
10. Sr. PPS to the Secretary, Environment and Forests.
11. Sr. PPS to the Director General of Forests & Special Secretary, MoEF.
12. Sr. PPS to the Addl. Director General of Forests (Forest Conservation), MoEF.
13. PS to the Inspector General of Forests (Forest Conservation), MoEF.
14. Guard File.

(H.C. Chaudhary)
Assistant Inspector General of Forests

GUIDELINES FOR LAYING TRANSMISSION LINES THROUGH FOREST AREAS

1. Where routing of transmission lines through the forest areas cannot be avoided, these should be aligned in such a way that it involves the least amount of tree cutting

2. As far as possible, the route alignment through forest areas should not have any line deviation.

3. (i) The width of right of way for the transmission lines on forest land shall be as follows:

Transmission Voltage	**Width of Right of Way (Meter)**
11kV	7
33 kV	15
66 kV	18
110 kV	22
132 kV	27
220 kV	35
400 kV S/C	46
400 kV D/C	46
+/- 500 kV HVDC	52
765 kV S/C (with delta configuration)	64
765 kV D/C	67
+/- 800 kV HVDC	69
1200 kV	89

(ii) In forest areas, only vertical delta configuration of 400 kV S/C and delta configuration of 765 kV S/C shall be permitted.

4. (i) Below each conductor or conductor bundle, following width clearance would be permitted for stringing purpose:

Transmission line with conductor bundle	**Width clearance below each conductor or conductor bundle (meter)**
Upto 400kV twin bundle	3

400 kV triple bundle	5
400 kV /+/- 500 kV HVDC /765 kV Quadruple bundle	7
+/- 800 kV HVDC / 765 kV hexagonal bundle	10

(ii) The trees on such strips would have to be felled but after stringing work is completed, natural regeneration will be allowed to come up. Felling/ pollarding/ pruning of trees will be done with the permission of the local forest officer wherever necessary to maintain the electrical clearance. One outer strip shall be left clear to permit maintenance of the transmission line.

(iii) During construction of transmission line, pollarding/ pruning of trees located outside the above width of the strips, whose branches/ parts infringe with conductor stringing, shall be permitted to the extent necessary, as may be decided by local forest officer.

(iv) Pruning of trees for taking construction/stringing equipments through existing approach/access routes in forest areas shall also be permitted to the extent necessary, as may be decided by local forest officer. Construction of new approach/access route will however, require prior approval under the Act..

(v) In the remaining width of right of way trees will be felled or lopped to the extent required, for preventing electrical hazards by maintaining the following:

Transmission Voltage	**Minimum clearance between conductor and trees (Meters)**
11 kV	2.6
33 kV	2.8
66 kV	3.4
110 kV	3.7
132 kV	4.0
220 kV	4.6
400 kV	5.5
+/- 500 kV HVDC	7.4
765 kV	9.0
+/- 800 kV HVDC	10.6
1200 kV	13.0

(vi) The maximum sag and swing of the conductors are to be kept in view while working out the minimum clearance mentioned as above.

(vii) To avoid any hazard, felling/cutting/pruning of those trees which because of their height /location may fall on conductors shall also be permitted, as may be decided by local forest office.

(viii) In the case of transmission lines to be constructed in hilly areas, where adequate clearance is already available, trees will not be cut except those minimum required to be cut for stringing of conductors.

(ix) In case of transmission lines passing through National Parks, Wildlife Sanctuaries and Wildlife Corridors, insulated conductors shall only be used to prevent electrocution of animals.

5. Where the forest growth consists of coconut groves or similar tall trees, widths of right of way greater than those indicated at Sl. No.3 may be permitted in consultation with CEA.

*****

02/03/2017

Annexure 32

Wild Life Report

Form for seeking recommendation of Standing Committee of NBWL/SBWL.

PART - I & II

(To be filled up by User Agency)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes
(a).Forests Clearance Type : Fresh
(ii). Proposal No. : FP/GA/RAIL/22041/2016
(iii). Name of Project: Castlerock - Kulem Railway Doubling
(iv). Short narrative of the Project : Railway network plays an important role in the economic development of the region. Railways are considered to be the most effective mode of transport of bulk commodities like Iron Ore, Coal, Fertilizers, Timber, Food grains etc. Over the years, Railway network has played a vital link between Ports/H
(v). State : Goa
(vi). Category of the Project : Railway
(vii). Shape of project land : Linear
(viii). Distance of the project from the boundary of the Protected Area (in km.): 0
(ix). Estimated cost of the Project (Rupees in lacs) : 9000
(x). Total period for which clearance is required (in year): NIL
(xi). Total Project Area(in ha.): 120.875
(xii). Area of Forest Land required for this Project (in ha.): 120.875
(xiii). Non-Forest Land required for this Project (in ha.): 0
(xiv). Forest Land within Protected Area (in ha.): 113.857
(xv). Non-forest Land within Protected Area (in ha.): 0
(xvi). Project Area under Protected Area(in ha.): 113.857
(xvii). Project Area under Non-Protected Area (in ha.): 7.018
(xviii). Project Area inside Wildlife Sanctuaries (in ha.): 113.302
(xiv). Project Area outside Wildlife Sanctuaries(in ha.): 0
(xv). Project Area inside Conservation Reserve(in ha.): 0
(xvi). Project Area outside Conservation Reserve(in ha.): 0
(xvii). Project Area inside National Park (in ha.): 0
(xviii). Project Area outside National Park(in ha.): 0
(xix). Project Area inside Ecologically Sensitive Zone(in ha.): 0
(xx). Project Area outside Ecologically Sensitive Zone(in ha.): 0

A-2. Details of User Agency

(i). Name : SOUTH WESTERN RAILWAY
(ii). Address1 : RAIL VIKAS NIGAM LIMITED
(iii). Address2 : OPP RAILWAY HIGH SCHOOL (EM), GADAG ROAD, HUBLI
(iv). State : Karnataka
(v). District : Dharwad

(vi). Pin : 580020
(vii). Landmark : NIL
(viii). Email address : gmprojectsrvnl@gmail.com
(ix). Landline Telephone No. : 2282025
(x). Fax No. : 2282025 **(xi). Mobile No. :** 9902855220
(xii). Website (if any) : NIL
(xiii). Legal status of User Agency : Central PSU

A-3. Details of Person Making Application

(i). First Name: Dy Chief Engineer
(ii). Middle Name: Construction
(iii). Last Name: South Western Railway
(iv). Gender: Male
(v). Designation: Dy Cheif Engineer/CN
(vi). Address 1: South Western Railway
(vii). Address 2: Office of the Chief Engineer (Construction), Club Road, Keshwapur
(viii). State: Karnataka
(ix). District: Dharwad
(x). Pin: 580020
(xi). Landmark: NIL
(xii). Email Address: gmprojectsrvnl@gmail.com
(xiii). Landline Telephone No.: 2282025
(xiv). Fax No.: 08362282025
(xv). Mobile No.: 9902855220
(xvi). Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: Annexure copy of documents in support of the competence

B. Details of Land required for the Project

B-1. Details of Protected Area

B-1.1 No. of Divisions involved in Protected Area

Division wise details of land			
S.no	**Division Name**	**Protected Area Name**	**Project Area under Protected Area**
1.	Wildlife - North	Bhagwan Mahavir Wildlife Sanctuery	113.857

B-1.2 Details of Districts involved

District wise breakup

S.no	District Name	Project Area under Protected Area(ha.)	Project Area under Non-Protected Area(ha.)
1.	South Goa	113.857	7.018

B-1.3 Component wise breakup

Component wise breakup			
S.no	**Component**	**Project Area under Protected Area(ha.)**	**Project Area under Non-Protected Area(ha.)**
1	Total Land Required For Railway Doubling	113.857	7.018

C. Maps of protected area

Division 1. : Wildlife - North

(i). Project Area under Protected Area (in ha.) : 113.857
(ii). Nature of the Project : Linear
(iii). No. of Segments : One

Patch/Segment wise details		
Segments	**Protected Area of segment(in ha.)**	**KML file of protected area of segment**
1.	113.857	🌐 View File

(iv). copy of Survey of India Toposheet indicating boundary of protected area: Annexure Survey of India Toposheet
(v). scanned copy of the Geo-referenced map of the protected area prepared by using DGPS or Total Station: Annexure scanned copy of the Geo-referenced map

D. Justification for locating the Project in protected area and details of alternates examined :

(i). copy of note containing justification for locating the Project in protected area: Annexure Justification
(ii). Whether a copy of map indicating location of alternative examined is required to be provided: Yes
(a). copy of map indicating location of alternative examined: Annexure alternative examined

E. Employment likely to be generated

(i). Whether project is likely to generate employment ?: Yes
(a). Permanent/Regular Employment(Number of persons): 81
(b). Temporary Employment(Number of person-days): 146000

F. Displacement of People due to the project, if any

(i). Whether project involve displacement?: No

G. Status of Environmental clearance

(i). Whether the Project requires Clearance under the Environment (Protection) Act 1986 ? : Yes

(a). Status of the Environmental Clearance to the Project : EC application yet to be submitted

H. Whether proposal is for investigation/survey

(H-2). Details of the Bio diversity Impact Assessment report in case the proposal involves use of more than 50 ha. NP/WLS.

(a).Copy of the Bio diversity Impact Assessment report: Annexure Copy of Bio diversity Impact Assessment report

(H-3). Information on the projects undertaken by the proponent agency in the past in Protected Areas

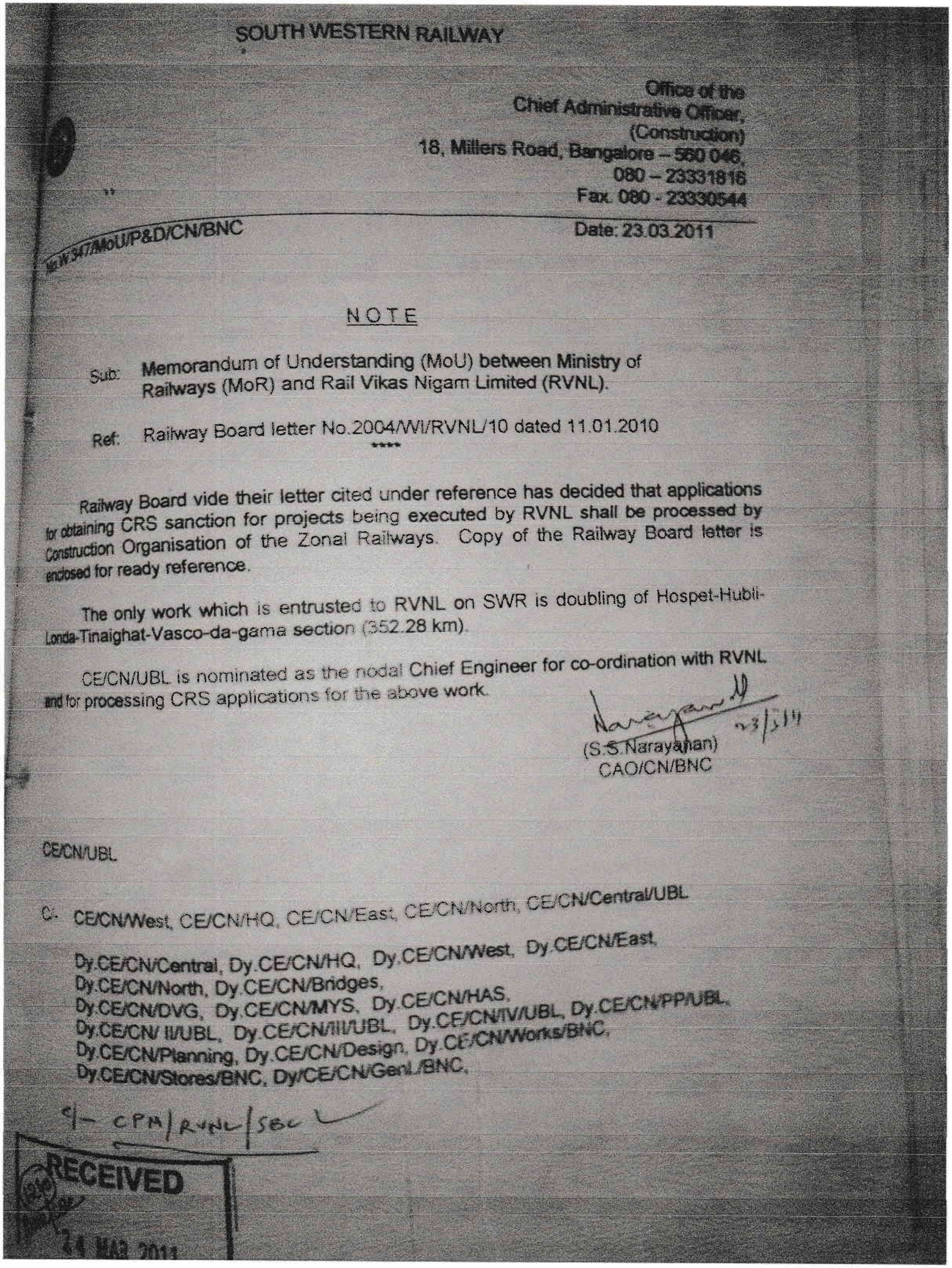
(a).Upload file: Annexure Information on the projects undertaken by the proponent agency in the past in Protected Areas

(H-4). Details regarding compliance of the conditions on each proposal

(a).Upload file: Annexure Details regarding compliance of the conditions on each proposal **(H-5).Whether any matter related to the project is sub judice in any court of law?:** No

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
1	Additional Info.	Pdf containing reply letter and general design for all four animal underpasses
2	Additional Info.	area statement
3	Additional Info.	min. use of forest land
4	Additional Info.	survey no wise details
5	Additional Info.	Payment of NPV for wildlife
6	Additional Info.	Non violation of Forest Act
7	Additional Info.	No Affect on Monument Certificate
8	Additional Info.	Form I&XIV for involved survey no
9	Additional Info.	Undertaking for

		payment of compensatory afforestation
10	Additional Info.	Geo refrenced village map
11	Additional Info.	Location of underpass
12	Additional Info.	Topo sheet
13	Additional Info.	MOU Copy
14	Additional Info.	EIA copy
15	Additional Info.	Alignment report
16	Additional Info.	Tree enumeration report part I
17	Additional Info.	Tree enumeration report part II
18	Additional Info.	Tree enumeration report part III
19	Additional Info.	Reply Towards Letter Dated 17/09/2019
20	Additional Info.	Map showing location of project site and protected wildlife are



SOUTH WESTERN RAILWAY

Office of the
Chief Administrative Officer,
(Construction)
18, Millers Road, Bangalore – 560 046,
080 – 23331816
Fax. 080 - 23330544

No.W.347/MoU/P&D/CN/BNC

Date: 23.03.2011

NOTE

Sub: Memorandum of Understanding (MoU) between Ministry of Railways (MoR) and Rail Vikas Nigam Limited (RVNL).

Ref: Railway Board letter No.2004/WI/RVNL/10 dated 11.01.2010

****

Railway Board vide their letter cited under reference has decided that applications for obtaining CRS sanction for projects being executed by RVNL shall be processed by Construction Organisation of the Zonal Railways. Copy of the Railway Board letter is enclosed for ready reference.

The only work which is entrusted to RVNL on SWR is doubling of Hospet-Hubli-Londa-Tinaighat-Vasco-da-gama section (352.28 km).

CE/CN/UBL is nominated as the nodal Chief Engineer for co-ordination with RVNL and for processing CRS applications for the above work.

Narayanan 23/3/11
(S.S.Narayanan)
CAO/CN/BNC

CE/CN/UBL

C. CE/CN/West, CE/CN/HQ, CE/CN/East, CE/CN/North, CE/CN/Central/UBL

Dy.CE/CN/Central, Dy.CE/CN/HQ, Dy.CE/CN/West, Dy.CE/CN/East,
Dy.CE/CN/North, Dy.CE/CN/Bridges,
Dy.CE/CN/DVG, Dy.CE/CN/MYS, Dy.CE/CN/HAS,
Dy.CE/CN/ II/UBL, Dy.CE/CN/III/UBL, Dy.CE/CN/IV/UBL, Dy.CE/CN/PP/UBL,
Dy.CE/CN/Planning, Dy.CE/CN/Design, Dy.CE/CN/Works/BNC,
Dy.CE/CN/Stores/BNC, Dy/CE/CN/Genl./BNC,

c/- CPM/RVNL/SBC

RECEIVED
24 MAR 2011

SOUTH WESTERN RAILWAY

Office of the Chief Engineer (Construction)
Club Road, Keshwapur, Hubli-580023
Fax:- 0836-2289665

No. PIU/UBL/CLR-QLM/LA/651 **Date: 05.04.2016**

JUSTIFICATION FOR LOCATING THE PROJECT IN FOREST LAND

Castlerock – Kulem Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial areas in Hospet to Marmugao Port in Vasco.

Also both Goa and Hospet are tourist destinations. Due to Industrial growth and growth in tourists, the existing Railway single line capacity is saturated. To meet the increasing demand and future growth, the existing Railway single line has to be doubled so that more and more Goods trains/Passenger trains can be run to meet the increasing demand. To minimize the land acquisition, this rail doubling is being done parallel to the existing single line. This is the only Railway line between Hospet and Vasco Port passing through forest land and there is no alternative as the alignment invariably has to pass through the Forest. Since the proposed Railway doubling is parallel to existing Railway line, which passes through the already existing Corridor in the forest, the new doubling Railway line is proposed through same forest along the same Corridor.

(Ramesh Kambli)
GENARAL MANAGER/Projects
PIU/RVNL/Hubli
Ph No. +91-9902855220

(M .V.Chalapathi Rao)
Dy. Chief Engineer /CN
South Western Railway
Hubli
Ph No. +91-9731665273

SOUTH WESTERN RAILWAY

Office of the Deputy Chief Engineer (Construction)
Club Road, Keshwapur, Hubli-580023
Fax:- 0836-2289665

Full Title of the Project: Tinaighat - Castlerock – Carnzol Railway Doubling of South Western Railway (in the state of Goa)

Date of Proposal : 30-July -2018

STATEMENT SHOWING DETAILS OF FOREST AREA PROPOSED FOR DIVERSION

Sl. No.	District	Taluka	Range/Tehsil/ Village	Khasra/ Survey or Compartment Number of Km. Stone	Forest Area	Remarks
1	2	3	4	5	7	8
	1.Area of land already available with South Western Railway : 70.795 Ha					
1	South Goa	Darbandora	Caranzol	23		
2	South Goa	Darbandora	Sonali	2		
3	South Goa	Darbandora	Colem	62,65, 66,67,77		
	2. Additional area of forest land proposed for Doubling including Tunnel portion : 43.062 Ha					
4	South Goa	Darbandora	Caranzol	23	14.867	
5	South Goa	Darbandora	Sonali	2	23.765	
				62/1	1.487	
6	South Goa	Darbandora	Colem	65/1	1.488	
				65/2	1.455	

(B.Chandra Sekhar)
GM /Projects
PIU/RVNL/SBC

(T.S. Chandra Shekar)
Dy. Chief Engineer /CN/PP
South Western Railway
Hubli

Date : : 08-07-2019

Place : Goa

Countersigned -

Divisional Forest Officer
………….Forest Division
Office Seal_____________

रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)
Corporate Identity Number: U74999DL2003GOI118633

Opp Railway High School(E.M)
Gadag Road, Hubballi – 580020
Fax/Ph: 0836 2282025
E-mail: *rvnlpiuhubli@gmail.com*

No.PIU/UBL//LA/654 **Date: 06.10.2018**

Deputy Conservator of Forests,
Wildlife & Eco- Tourism,
1st Lift, 4th Floor, Junta House
Panaji, Goa, 403001

Sir,

Sub: Castlerock- Kulem Railway doubling of South Western Railways (in the state of Goa) – Reg.

Ref : 1. Forest Clearance Proposal No. FP/GA/RAIL22041/2016
2. Deputy Conservator of forests, Wildlife & Eco- Tourism (N) ltr. No. 1-609-WL&ET(N)/(PART)/17-18//3290 Dt 01.02.18

Proposal for Forest clearance of Castlerock -Kulem Railway doubling of South Western Railway (in the state of Goa) has been uploaded on online portal PARIVESH.

Vide letter under ref(2), the location for the animal underpass has been asked to be submitted. Following locations have been finalized in accordance to the letter no. 1-609/WL& ET (N)/17-18/220 (enclosed) Dated 08.05.17 and site inspection done by ACF/Wildlife Department/Mollem and RFO/ Wildlife Department/ Mollem:

1. Ch 32/200
2. Ch 41/100
3. Ch 45/500
4. Ch 49/500

General Arrangement Drawing has been already submitted to wildlife department on 27.09.2018

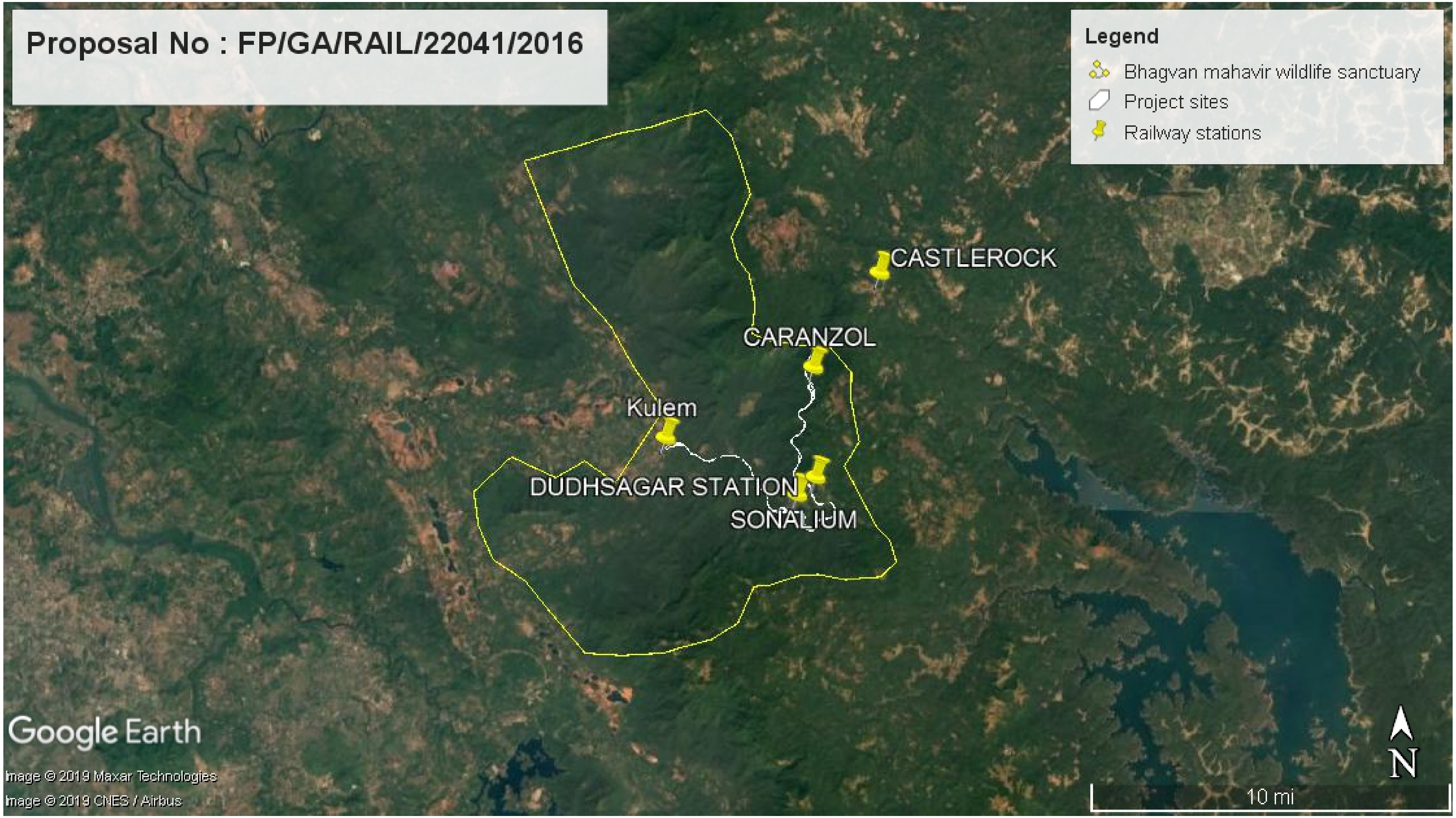
It is kindly requested to process further for permission for diversion of Forest land for Railway Doubling Project.

Encl: As mentioned above

Yours faithfully

6/10/18

(Ramesh Kambli,IRSE)
General Manager/Projects


Proposal No : FP/GA/RAIL/22041/2016
Legend
Bhagvan mahavir wildlife sanctuary
Project sites
Railway stations
CASTLEROCK
CARANZOL
Kulem
DUDHSAGAR STATION
SONALIUM
Google Earth
Image © 2019 Maxar Technologies
Image © 2019 CNES / Airbus
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रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)
Corporate Identity Number: U74999DL2003GOI118633

Opp Railway High School(E.M)
Gadag Road, Hubballi – 580020
Fax/Ph: 0836 2282025
E-mail: *rvnlpiuhubli@gmail.com*

No.PIU/UBL/LA/654 **Dated: 27.09.2018**

Dy Chief Conservator of Forests/Wildlife/North
Forest Department
Panajji, Goa-403001

Sub: Castlerock - Kulem Railway Doubling Project **: Provision of underpasses for animal crossing areas – reg**

Ref: Your office letter No.I-609/WL&ET(N)/17-18/220 dated 08.05.2017.

With regard to the above subject, two locations of Wild animals crossing in Castlerock - Kulem section were furnished vide your above referred letter, for providing underpasses and overpasses.

In addition to the above two locations, two more locations of Wild animals crossing have been identified at CH: 32/200 and CH: 41/100 by ACF/Wildlife Dept/Mollem and RFO/Wildlife Dept/Mollem during the joint inspection conducted in Castlerock - Kulem section on 20.09.2018 with Rail Vikas Nigam officials.

General Arrangement Drawing along with additional documents containing specifications and coordinates (**Annexure-I**) for underpasses to be provided at all the above four locations is enclosed herewith for your further approval please.

Thanking you,

Yours faithfully

Encl: As above in Four sets

(Ramesh Kambli,$_{\text{IRSE}}$)
General Manager/Projects
PIU/RVNL/Hubli

680

GOVERNMENT OF GOA
OFFICE OF THE DY.CONSERVATOR OF FORESTS
WILDLIFE & ECO-TOURISM (NORTH)
1ST LIFT, 4TH FLOOR, JUNTA HOUSE,
PANAJI-GOA 403001
Ph. no. 0832 - 2229701
Fax no. 0832 - 2422864
E-mail: dcfwlnorth-forest.goa@nic.in

No.1-609/WL&ET(N)/17-18/220

Dated: 08.05.17

Office of the Divl. Rly. Manager (Gen. Br.)
002160
12 MAY 2017

To
The Divisional Railway Manager,
South Western Railways,
Hubli Division,
Hubli, Karnataka.

Sub: Project for doubling of railway track in Castlerock-Kulem section of South Western Railway – Reg.

Sir,

With reference to the subject cited, the information on Wild animals crossing area in Castlerock-Kulem section of Goa is furnished herewith,

Chainage no. 45/500. GPS : 15º19'30.6" N and 74º16'56.3"
Chainage no. 49/500. GPS : 15º20'16.9" N and 74º15'07.4"

Your attention is further invited to the decisions taken during the previous State Board for Wildlife meeting held on 12.10.16, wherein it was advised that provision for underpasses and overpasses shall be made for animal crossing areas.

You are therefore requested to take this aspect into consideration while formulating the project. The additional studies proposed as part of EIA of project in the said meeting may also be made.

DRM
~~ADRM~~
Sr.DEN/Co.

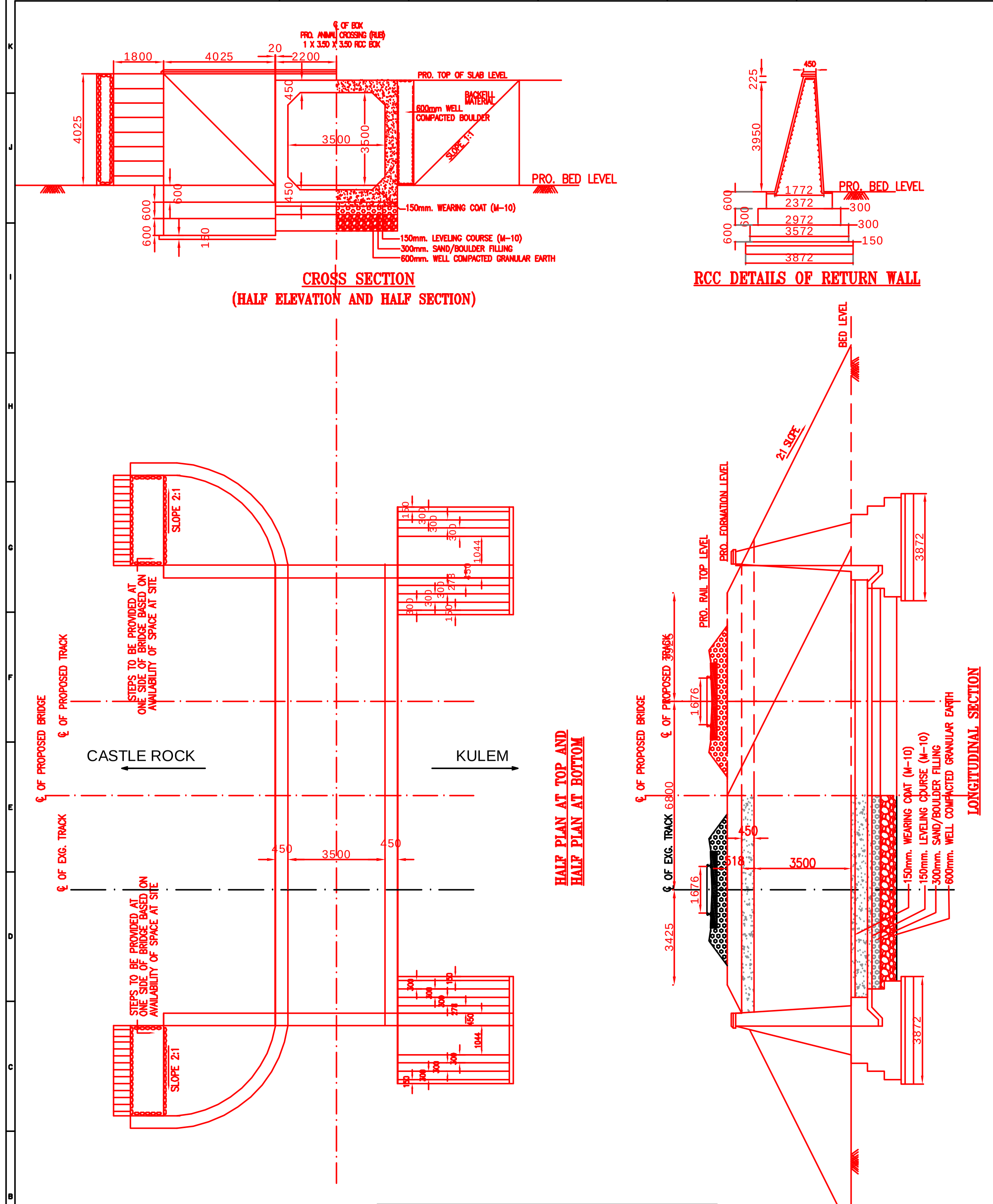
Need to be communicated to RVNL
12/5

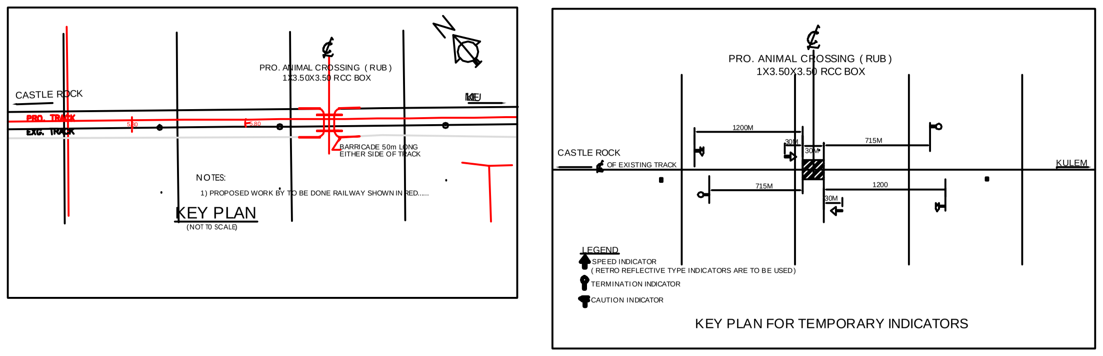
Yours faithfully,

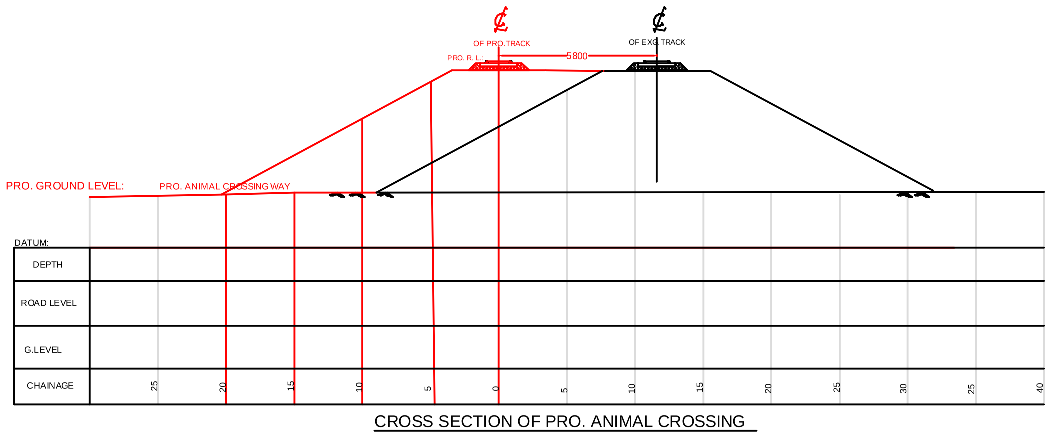
08/05/17
(Dr. A. Anil Kumar, IFS)
Dy. Conservator of Forests

"Swachh Bharat, Swachh Goa"
"Clean India, Clean Goa"

15/5
Engg
Pl send copy to GPM/RVNL/SBC & DGM/RVNL/Goa


℄ OF BOX PRO. ANIMAL CROSSING (RUB) 1 X 3.50 X 3.50 RCC BOX
PRO. TOP OF SLAB LEVEL
BACKFILL MATERIAL
600mm WELL COMPACTED BOULDER
SLOPE 1:1
PRO. BED LEVEL
1800
4025
2200
3500
450
600
150
150mm. WEARING COAT (M-10)
150mm. LEVELING COURSE (M-10)
300mm. SAND/BOULDER FILLING
600mm. WELL COMPACTED GRANULAR EARTH
CROSS SECTION
(HALF ELEVATION AND HALF SECTION)
225
3950
1772
2372
2972
3572
3872
PRO. BED LEVEL
RCC DETAILS OF RETURN WALL
℄ OF PROPOSED BRIDGE
℄ OF PROPOSED TRACK
℄ OF EXG. TRACK
STEPS TO BE PROVIDED AT ONE SIDE OF BRIDGE BASED ON AVAILABILITY OF SPACE AT SITE
SLOPE 2:1
CASTLE ROCK
KULEM
1044
HALF PLAN AT TOP AND HALF PLAN AT BOTTOM
BED LEVEL
2:1 SLOPE
PRO. FORMATION LEVEL
PRO. RAIL TOP LEVEL
1676
6800
3425
3500
3872
150mm. WEARING COAT (M-10)
150mm. LEVELING COURSE (M-10)
300mm. SAND/BOULDER FILLING
600mm. WELL COMPACTED GRANULAR EARTH
LONGITUDINAL SECTION


CASTLE ROCK
PRO. TRACK
EXG. TRACK
PRO. ANIMAL CROSSING (RUB) 1X3.50X3.50 RCC BOX
BARRICADE 50m LONG EITHER SIDE OF TRACK
NOTES:
1) PROPOSED WORK BY TO BE DONE RAILWAY SHOWN IN RED
KEY PLAN
(NOT TO SCALE)
PRO. ANIMAL CROSSING (RUB) 1X3.50X3.50 RCC BOX
CASTLE ROCK
OF EXISTING TRACK
KULEM
1200M
715M
LEGEND
SPEED INDICATOR
(RETRO REFLECTIVE TYPE INDICATORS ARE TO BE USED)
TERMINATION INDICATOR
CAUTION INDICATOR
KEY PLAN FOR TEMPORARY INDICATORS


OF PRO TRACK
OF EXG TRACK
PRO. R. L.
6800
PRO. GROUND LEVEL:
PRO. ANIMAL CROSSING WAY
DATUM:
DEPTH
ROAD LEVEL
G.LEVEL
CHAINAGE
25
20
15
10
5
0
5
10
15
20
25
30
25
40

CROSS SECTION OF PRO. ANIMAL CROSSING

TRACK DETAILS

LOADING——— 25T Loading
ALIGNMENT ———
GRADE ———
RAIL LEVEL ——
FORM. LEVEL ——

BRIDGE STRENGTH CERTIFICATE

THE HEAVIEST LOADS WHICH THE BRIDGE WILL HAVE TO CARRY NOT BE IN EXCESS OF 25-T LOADING-2008 AT STAPULATED SPEED AND WILL NOT CAUSE ANY STRESS IN ANY MEMBERS OR THE STRUCTURE IN EXCESS OF MAXIMUM PERMISSIBLE LAID DOWN IN THE INDIAN RAILWAY STANDARD CPAD OF PRACTICE.

DEPTH OF CONSTRUCTION FOR PROPOSED BG TRACK	
RAIL 60kg	: 172mm
GR PAD	: 6mm
PSC SLEEPER	: 210mm
BALLAST CUSHION	: 350mm
TOTAL	= 738mm

DEPTH OF CONSTRUCTION FOR EXISTING BG TRACK	
RAIL 60kg	: 172mm
GR PAD	: 6mm
PSC SLEEPER	: 210mm
BALLAST CUSHION	: 300mm
TOTAL	= 688mm

MODUS OPERANDI:-

1) Impose temporary speed restriction of 20KMPH over to take up the preliminary works.
2) take suitable trafficblock of 3hrs to take up steping for RH girder on either and to insert RH girder.
3) complete the construction of RCC box and push in to the embankment under the trade by the following way.
3) Isloate on either side with buffer rails/SEJ.
5) RCC Box units to be kept ready for rolling in the alignment.
6) During line block remove the P-WAY to the required length excavate and errect steel cribs A and B as shown in the drawing.Install 1 set of 20050m over all length GIRDER over the cribs link up the P-WAY and allow the traffic at restricted speed of stop dead and proceed at 20KMPH for first 3 days for even settlement of cribs then subsequently non stop 20KMPH.
7) Excavate and provide C.C Levelling couurse at the excavated portion of pro bridge and to set for 3 days & roll the RCC Box units in to final position duly providing epoxy resine mortar of specified composition between box units fill up the earth arround the box in layers of 300mm well rammed to correct profile up to the bottom of GIRDER.
8) During line block remove all the temporary arrangements and fill up the earth in layers of 300mm well rammed to correct profile in remaining portion link up the P-WAY and allow the traffic at restricted speed of 20KMPH.
9) During line block remove the service rails and relay the existing rails and allow the traffic at restricted speed.
10) Complete the remaining part of bridge work in all respect.
11) The gradual release of speed restriction shall be as per PARA 238(g) of IRPWM.
12) For CC cribs Ref Dwg No.RDSO/B-1589.
13) For details of clamps CC Cribs Ref Dwg No.RDSO/B-1484/4.

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1) All dimensions are in mm unless otherwise specfied
2) Levels are shown in meters
3) All RCC and PSC works are to be done as per IRC code read with south western railway specification for materials and works 2008.
4) Standard of loading is 25t Axle Loading.
5) Carriageway width of 3.50m with 0.75m footpath has been proposed.
6) Structure proper within railway limits will be mainted by Railways and rest will be maintained by road authorities.
7) High strength deformed bars (TOR) shell confrim to IS 1786 - 2008 (Fe 500)
8) Plain concrete to be of M25.
9) Minimum grade for RCC to be M30 with 20mm graded stone aggregate.
10) Work on road approaches to be started and completed simultaneously with that of bridge structure.
11) Structural dimension are tenative, actual dimension will be decided on design.
12) The abutting land is at lower level on all sides of the proposed RUB.
13) GUARD RAIL ARE PROVIDED @ RUB LOCATION.
14) Exposure condition of bridge is moderate.
15) Refer RDSO drawing for structure details.

Existing Telegraph posts, Electric posts, Signal cables and water mains etc, if any effected by the proposals to be shifted suitably by the respective departments.

Maintanance of road surface after the completion of the Road Under Bridge to be done by Road Authorities inside and outside the railway limits.

RAIL VIKAS NIGAM LIMITED
(A GOVT. OF INDIA ENTERPRISE)

SECTION	CASTLEROCK- KULEM			
NAME OF WORK	GENERAL ARRANGEMENT DRAWING PROPOSED ANIMAL CROSSING 1X3.50X3.50M RCC BOX (RUB) AT KM;32/200,41/100,45/500 ,49/500 BETWEEN CASTLE ROCK AND KULEM STATIONS			
PROJECT	DOUBLING OF TRACK BETWEEN CASTLEROCK- KULEM SECTION SECTION			
PREPARED BY				
DRAWING NO	RVNL No.	CLR/QLM/MNB/GAD/	SCALE AS SHOWN	REV. 0

— sd —
(RAMESH KAMBLI)
GENERAL MANAGER/PROJECTS
RVNL

रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)

No. GM/P/SBC/RVNL/FOREST

Date: 23/09/2019

To,
The Dy. Conservator of Forests,
Wildlife & Eco-Tourism (N),
Panaji- Goa

Sub: Castlerock- Kulem Railway Doubling in the state of Goa.

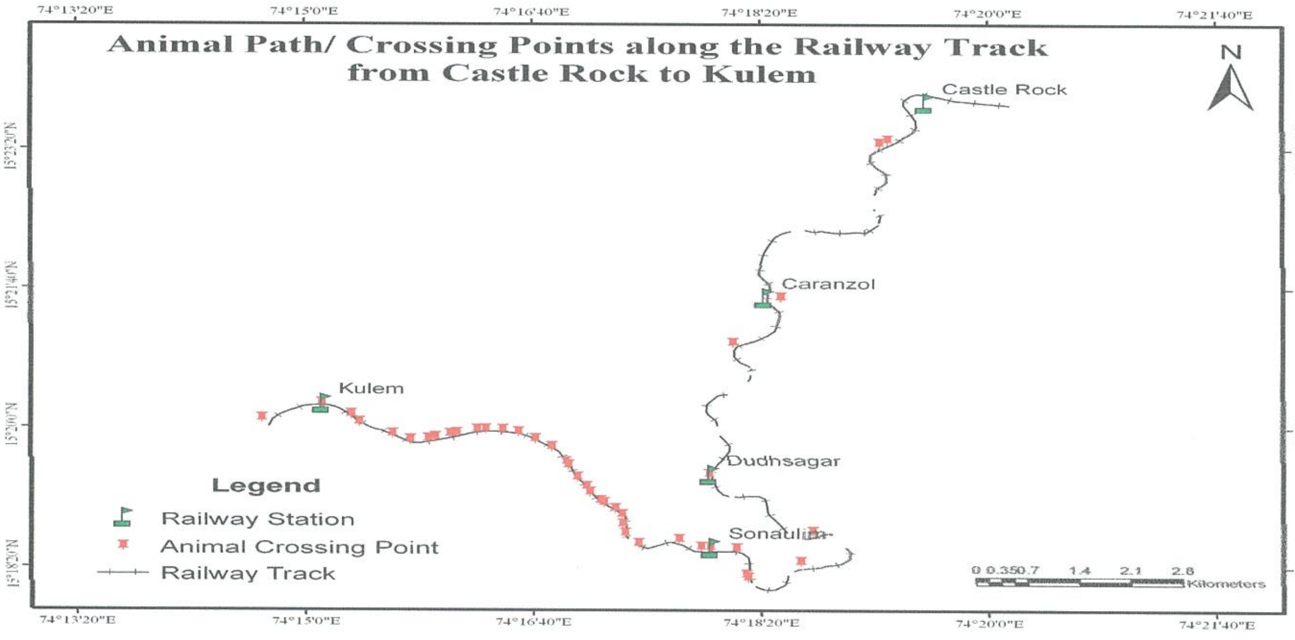
Ref: 1. Proposal No: FP/GA/RAIL/22041/2016

2. Your letter no.1-663/WL & ET(N) 19-20/1251 dated 13.09.19

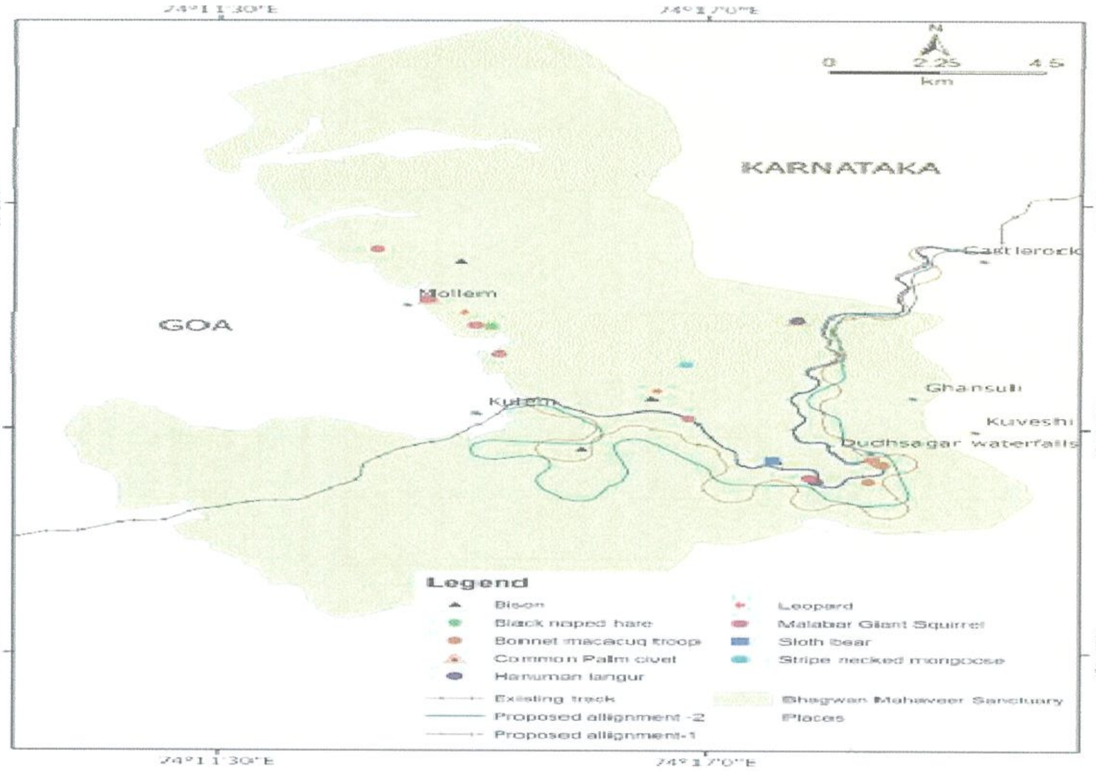
Sir,

With reference to your letter cited above, the following information is furnished for your perusal:

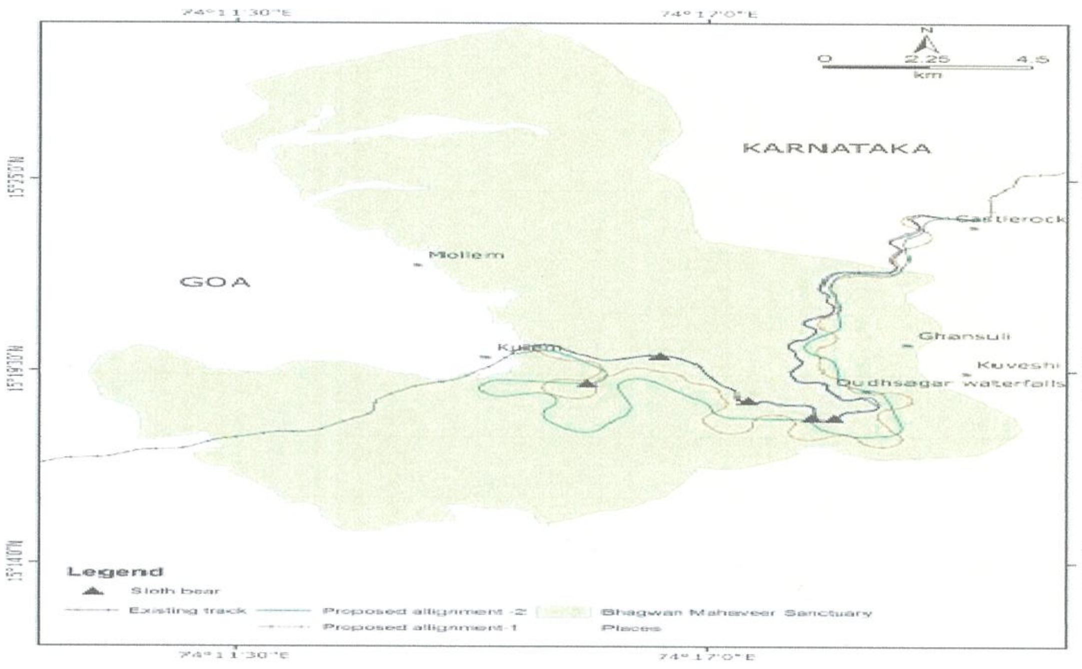
Single line Rail network is available in the Castlerock - Kulem Section as early as from the year 1905. Wild animal habitat of the sanctuary is already moving in packs/single on either side of tracks. There are 114 nos of waterway crossings (minor bridges) and 7 river crossings (Viaducts/Major Bridges) are available in this Railway alignment and as per EIA/ Bangalore report, they are being used by the wild animals of the sanctuary to cross the track: As such there isn't any defragmentation of existing animal population. Extract of EIA report showing animal paths enclosed here with for ready reference please.


Animal Path/ Crossing Points along the Railway Track
from Castle Rock to Kulem
N
Castle Rock
Caranzol
Kulem
Dudhsagar
Sonaulim
Legend
Railway Station
Animal Crossing Point
Railway Track
0 0.35 0.7 1.4 2.1 2.8
Kilometers
74°13'20"E
74°15'0"E
74°16'40"E
74°18'20"E
74°20'0"E
74°21'40"E
15°23'20"N
15°21'40"N
15°20'0"N
15°18'20"N

Animal paths/ crossing points / along the railway track between Castlerock and Kulem

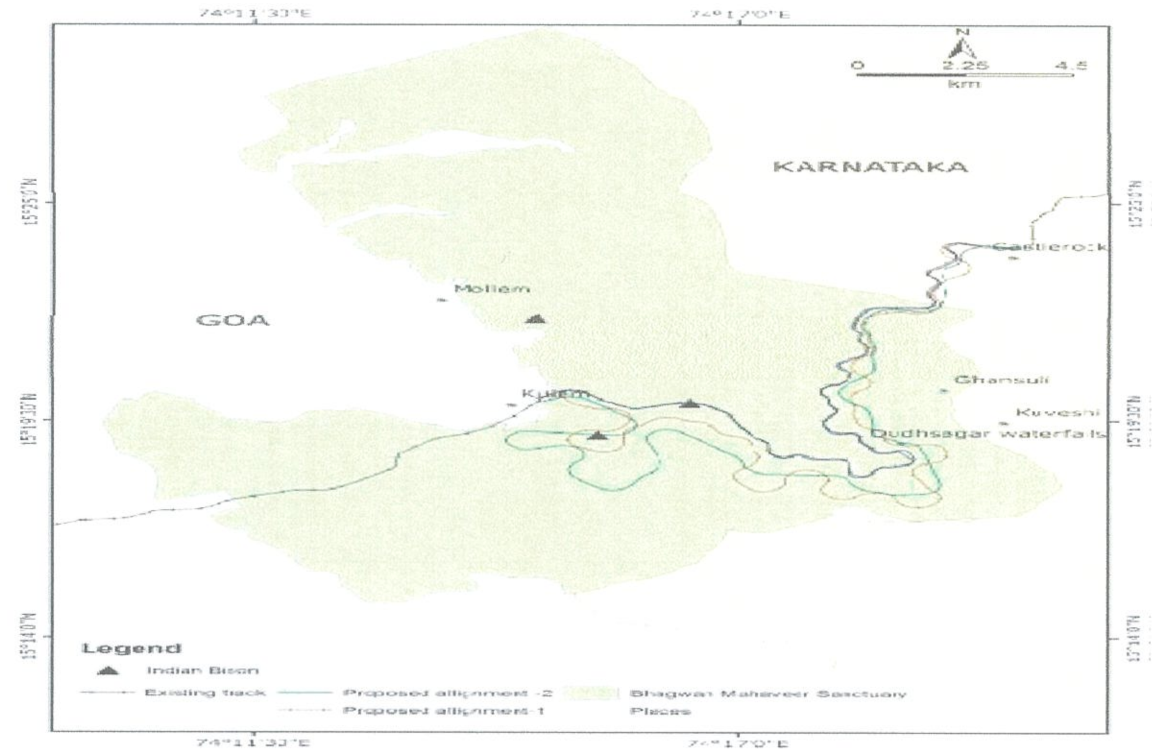

74°11'30"E
74°17'0"E
0 2.25 4.5
km
N
KARNATAKA
GOA
Mollem
Kulem
Castlerock
Ghansuli
Kuveshi
Dudhsagar waterfalls
15°25'0"N
15°19'30"N
15°14'0"N
Legend
Bison
Black naped hare
Bonnet macacuq troop
Common Palm civet
Hanuman langur
Leopard
Malabar Giant Squirrel
Sloth bear
Stripe necked mongoose
Existing track
Proposed allignment -2
Proposed allignment-1
Bhagwan Mahaveer Sanctuary
Places

Locations of direct sighting of mammals at Bhagwan Mahavir Wildlife Sanctuary, Goa during the field survey

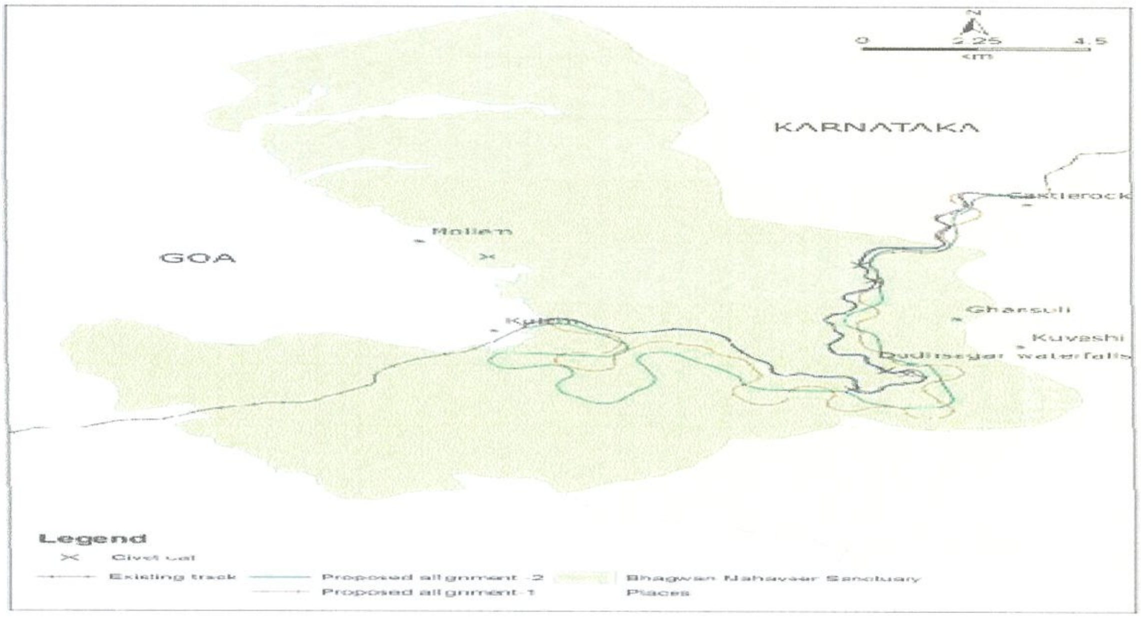

74°11'30"E
74°17'0"E
0 2.25 4.5
km
N
KARNATAKA
GOA
Mollem
Kulem
Castlerock
Ghansuli
Kuveshi
Dudhsagar waterfalls
15°25'0"N
15°19'30"N
15°14'0"N
Legend
Sloth bear
Existing track
Proposed allignment -2
Proposed allignment-1
Bhagwan Mahaveer Sanctuary
Places

Evidence of Sloth Bear at Bhagwan Mahavir Wildlife Sanctuary, Goa.

Cont....3

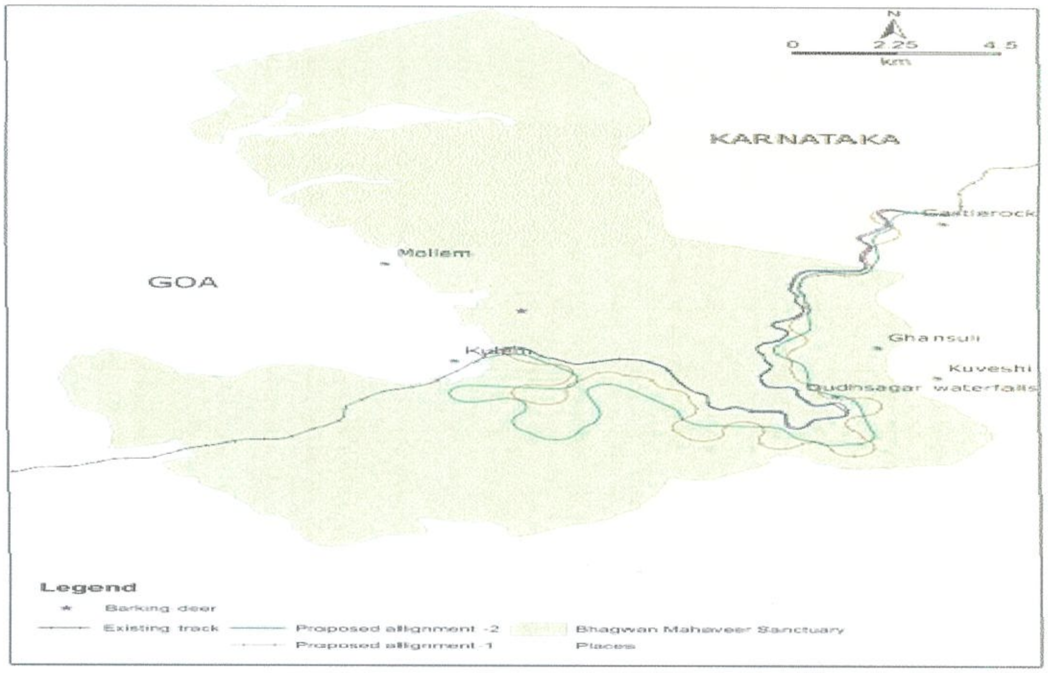

74°11'30"E
74°17'0"E
15°25'0"N
15°19'30"N
15°14'0"N
N
0
2.25
4.5
km
KARNATAKA
GOA
Mollem
Kulem
Castlerock
Ghansuli
Kuveshi
Dudhsagar waterfalls
Legend
Indian Bison
Existing track
Proposed allignment -2
Proposed allignment-1
Bhagwan Mahaveer Sanctuary
Places

Evidence of Indian gaur at Bhagwan Mahavir Wildlife Sanctuary, Goa.

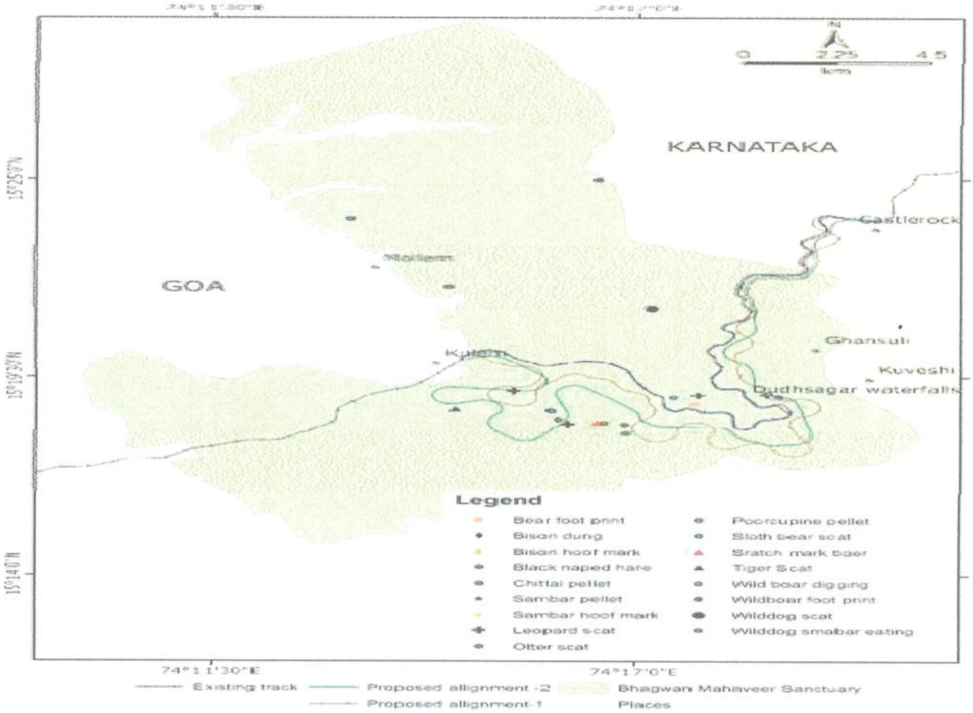

N
0
2.25
4.5
km
KARNATAKA
GOA
Mollem
Kulem
Castlerock
Ghansuli
Kuveshi
Dudhsagar waterfalls
Legend
Civet cat
Existing track
Proposed allignment -2
Proposed allignment-1
Bhagwan Mahaveer Sanctuary
Places

Evidence of civet cat at Bhagwan Mahavir Wildlife Sanctuary, Goa during field survey

Cont…4


N
0 2.25 4.5
km
KARNATAKA
Castlerock
Mollem
GOA
Ghansuli
Kulem
Kuveshi
Dudhsagar waterfalls
Legend
Barking deer
Existing track
Proposed allignment -2
Proposed allignment -1
Bhagwan Mahaveer Sanctuary
Places

Evidence of barking deer at proposed project site during the field survey


N
0 2.25 4.5
km
KARNATAKA
Castlerock
Mollem
GOA
Ghansuli
Kulem
Kuveshi
Dudhsagar waterfalls
15°25'0"N
15°19'30"N
15°14'0"N
74°11'30"E
74°17'0"E
Legend
Bear foot print
Bison dung
Bison hoof mark
Black naped hare
Chittal pellet
Sambar pellet
Sambar hoof mark
Leopard scat
Otter scat
Poorcupine pellet
Sloth bear scat
Sratch mark tiger
Tiger Scat
Wild boar digging
Wildboar foot print
Wilddog scat
Wilddog smabar eating
Existing track
Proposed allignment -2
Proposed allignment-1
Bhagwan Mahaveer Sanctuary
Places

Indirect signs of mammals outside the transects in Bhagwan Mahavir Wildlife Sanctuary, Goa

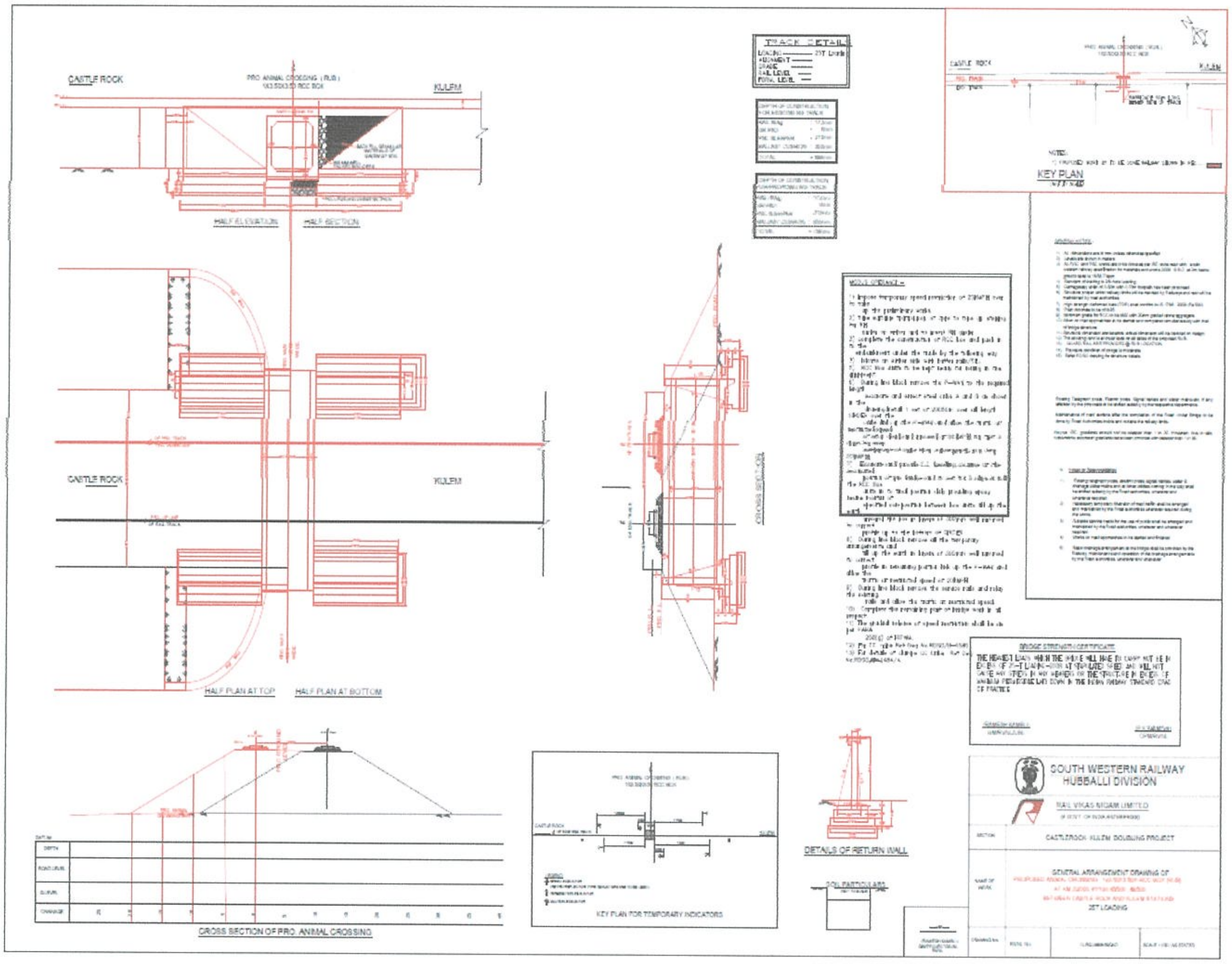
Cont….5

---5---

In the proposed doubling project, all the existing waterway crossings are being extended. As such there will not be any disturbance to existing movement.

Further, to meet the guidelines issued by Institute, National Wildlife and as proposed by IISc Bangalore: four underpasses of 12.0m Wide and 5.65m Height are proposed between Castlerock and Kulem. These proposed locations are also confirmed by the forest officials during their field inspection.

1. Locations of underpasses are as below:
    1. @km31/550 - 12.0M*5.65M
    2. @km41/075 - 12.0M*5.65M
    3. @km 42/800 - 12.0M*5.65M
    4. @km 44/565 - 12.0M*5.65M


CASTLE ROCK
KULEM
TRACK DETAIL
HALF ELEVATION
HALF SECTION
KEY PLAN
CASTLE ROCK
KULEM
HALF PLAN AT TOP
HALF PLAN AT BOTTOM
BRIDGE STRENGTH CERTIFICATE
SOUTH WESTERN RAILWAY
HUBBALLI DIVISION
RAIL VIKAS NIGAM LIMITED
SECTION
CASTLEROCK KULEM DOUBLING PROJECT
NAME OF WORK
GENERAL ARRANGEMENT DRAWING OF
25T LOADING
KEY PLAN FOR TEMPORARY INDICATORS
DETAILS OF RETURN WALL
SOIL PARTICULARS
CROSS SECTION OF PRO. ANIMAL CROSSING

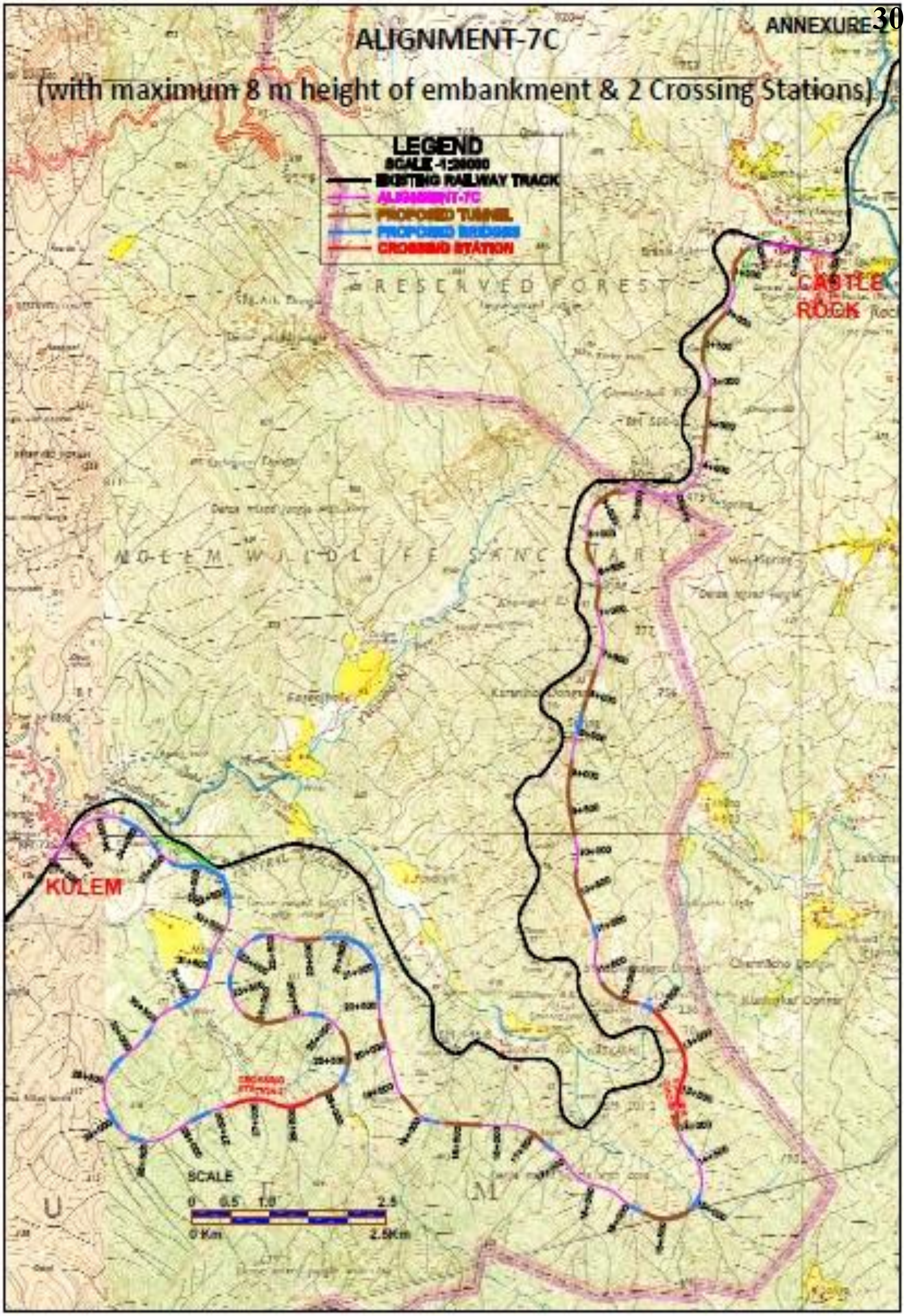
(B. Chandra Sekhar) 28/09/19
GM/Civil/Bangalore

Encl: Copy of Proposed Underpass

ANNEXURE-2

ALIGNMENT-7C

(with maximum 8 m height of embankment & 2 Crossing Stations)


LEGEND
SCALE
EXISTING RAILWAY TRACK
ALIGNMENT-7C
PROPOSED TUNNEL
PROPOSED BRIDGES
CROSSING STATION
RESERVED FOREST
MOLLEM WILDLIFE SANCTUARY
CASTLE ROCK
KULEM
CROSSING STATION
SCALE
0
0.5
1.0
2.5
0 Km
2.5Km
U
M

Annexure 33

Report Part-III

Form for seeking recommendation of Standing Committee of NBWL/SBWL to be filled by Wildlife Warden (Part-III)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes
(ii). Proposal No. : FP/GA/RAIL/22041/2016
(iii). Name of Project: Castlerock - Kulem Railway Doubling
(iv). Short narrative of the Project : Railway network plays an important role in the economic development of the region. Railways are considered to be the most effective mode of transport of bulk commodities like Iron Ore, Coal, Fertilizers, Timber, Food grains etc. Over the years, Railway network has played a vital link between Ports/H
(v). State : Goa
(vi). Category of the Proposal : Railway
(vii). Shape of project land : Linear
(viii). Estimated cost of the Project (Rupees in lacs) : 9000
(ix). Total period for which clearance is required (in years): NIL
(x). Category of Protected Area: National Park
(xi). Total Project Area(in ha.): 120.875
(xii). Area under Protected Area (in ha.): 113.857
(xiii). Area under Non-Protected Area (in ha.): 7.018

A-2. Alternative details uploaded by User Agency

Alternative details uploaded by User Agency	
Yes	**Uploaded file**

A-3. Bio diversity Impact Assessment Report uploaded by User Agency

(i).Bio diversity Impact Assessment Report uploaded by User Agency:	Uploaded file

A-4. Details of division

Division 1. : Wildlife - North
(i). Total Area of the Protected Area (in ha.): 11.54
(ii). Upload copy of Conservation value of the Protected area: Annexure Survey of India Toposheet
(iii). Comments on the proposal with reference to the alternatives considered: There is no alternative
(iv). Comments on the Bio diversity Impact Assessment Report: NA

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification:

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification

S.no	Name of project	User Agency	Year	Area Diverted/ Permitted for use(ha.)
1.	Castlerock to Kulem	South Western Railway	2016	Wildlife - North

Impact(s)due to the diversion of area for the use of land for the projects referred above:

Impact(s)due to the diversion of area for the use of land for the projects referred above

S.no	Name of project	Upload impact report	Area Diverted / Permitted for use
1.	Castlerock to Kulem	Annexure Upload impact report	113.857

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980:

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980

S. no	Under Act	Name of Project	Details of violation	Period of work done	Area of forest land involved in violation	Name of person(s) responsible for violation	Designation & Address of person(s) responsible for violation	Action taken against the person(s) responsible for violation

Any other information that you would like to place on record for decision making:

Documents

S.No	Uploaded Additional Info. Files	Remarks

NIL

(v). Provide comprehensive details of the likely impact of the current proposal in terms of sections 29 and/or section 35(6) of the Wildlife(Protection)Act, 1972	**:** Annexure Comprehensive letter
(vi).Has any work related to the project proposed been commenced at the proposed location	**:** No
A-5	Site inspection report of the Wildlife Warden/Chief Wildlife Warden highlighting important facts pertaining to the forest land

Division Name	**Circle**	**Site inspected By**	**Whether site inspected**	**No. of times site visited**	**Site inspection report**	**Date of visit**
Wildlife - North	Wildlife and Ecotourism	DFO		One	PDF	18/01/2019

(Specific recommendation of the Wildlife Warden/Chief Wildlife Warden with(Part II & III))

A-6 Specific recommendation of the Wildlife Warden/Chief Wildlife Warden for acceptance or otherwise of the proposal with reason

Division	**Circle**	**Recommendation By**	**Recommendation**	**Reason**	**Letter**	**Whether CF agreed**
Wildlife - North	Wildlife and Eco-tourism	DFO	Recommended	Is of Economic & National Importance.	PDF	

IMPACT OF CURRENT PROPOSAL AND REMARKS:

The railway project of Castlerock - Kulem doubling line will divert forest land of 120.875 Ha of which 113.857 Ha will be in Bhagwan Mahavir National Park and 7.018Ha in Reserve forest. 8783 Nos of trees are enumerated by Railway authorities in 43.062 Ha of National Park and 9758 trees are enumerated by Railway in 70.795 Ha of land with railway authority within the National Park. This is a 2nd proposal of Vasco – Hospet railway project passing through the Mollem Bhagwan Mahaveer Wildlife Sanctuary and national Park. In 1st proposal an area of 14.4185 Ha of Wildlife Sanctuary is proposed for diversion were in 2217 trees are enumerated.

Doubling of tract will be going to do further fragmentation of an important wildlife refuge and corridor of Goa State.

The doubling of track will involve felling of more than 18541 Nos. of trees as per valuation report in National Park and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds and exotic species that out-compete native plants and lead to alter animals' use of habitats. Also it involved cutting on Hill side and filling on valley may cause severe impact of disturbance to wildlife of that particular area in the form of noise and loss of habitat. As the work progress there will be more chances to increase landslides and soil erosion due to heavy rain resulting in damage to vegetation and siltation of rivulets exist in area.

In addition to this changes may occur in ecological and ecosystem process such as pollination, seed dispersal and carbon storage. The maximum portion of area to be acquired and conversion along rail section is having steep slope i.e. valley in part of National Park and there are every possibilities to cause severe damage to fragile forest ecosystem by soil erosion and landslides, degrade soil quality, and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people depends.

The user agency has agreed to adopt the high costs of wildlife-friendly mitigation measures and agreed to build underpasses and overlays , however there may not be possible to prevent damage cause to wild animals from traffic passing through protected area , especially at night when, blinded by bright headlights .

The user agency submitted a wildlife passage designs as per guidelines framed by Wildlife Institute of India under MoEF & CC, GOI, incorporated wildlife-friendly structural designs such as overpass or underpasses at suitable sites for local wildlife movement. It will help to make free movement to free ranging animals.

Further on completion of construction phase, the faunal Spp will not get affected as provision for crossing project will be ready and not obstruct their free movement. Also, trees listed for felling under this project will be compensated in long term through the proposed plantation Programme.

Recommendations:-

As the terrain is undulating hilly with heavy rainfall and gradient above 30′ the alignment of rail way is highly vulnerable to soil erosion as such all precaution measures are to be taken to control soil erosion and washout of soil in the forest stream and in forest which may degrade flora of forest of Wildlife Sanctuary. The precautions are to be taken in respect to soil erosion by construction of rubble wall bandaras across the contour lines so that soil should not be wash away and soil erosion is controlled. The site is inspected and all possible under passes and over passes are recommended with dimensions as per the size of animals. These underpasses will reduce the death of Wildlife by accidents. The user agency should in particular look often this factors while execution of the project.

User agency will also undertake works for putting proper signage to control speed limit to allow wild animals on priority, not to light fire in wildlife sanctuary area, not to litter in Wildlife Sanctuary area and National Park, speed limits to train and GPS control on speed of train. No labour camp allowed in Wildlife Sanctuary & National Park and all restriction on labours working in Wildlife Sanctuary/ National Park. Similarly put a proper big board at entry point on both sides to caution vehicle driver that they are entering wildlife sanctuary/National Park. The structure like fire watch towers, fire post, fencing for wildlife at some places, regular fire lines along the track may be provided.

This proposal is approved in Principal in the state Wildlife Advisory meeting dated 12/10/2016 and 16/12/2017

Considering all above recommendation the proposal is recommended.

Dy. Conservator of Forests
Wildlife & Eco- tourism (N)

Annexure 34

EXCERPTS FROM THE EIA REPORT SUBMITTED FOR THE DOUBLE TRACKING OF THE RAILWAY LINE FROM CASTLEROCK TO KULEM:

- BMWLS which accounts for large proportion of proposed project area has about 721 species of wild plants belonging to 490 genera and 119 families. The family Leguminosae (63 species) is represented by the highest number of species, followed by Poaceae (grasses) (40 species), Rubiaceae (38 species) and Euphorbiaceae, Orchidaceae and Acanthaceae (34 species). Largest genus was Ficus (figs) with 12 species followed by Diospyros (8 species) and Syzygium (6 species). There are about 126 species reported to be endemic with a large number of them confined to the Western Ghats. Though BMWLS account for 0.05% of the area of the Western Ghats, it harbours 8.4% of endemic species that are endemic to the Western Ghats. BMWLS also accounts for 50% of species that are described from the state of Goa
- Despite its small size, Goa is endowed with a rich faunal diversity. The mammals include several species listed in Schedule I of the Wildlife Protection Act (1972) such as the larger mammals (Indian gaur,leopard). Elephants are rare seasonal visitors from nearby Karnataka. Striped hyena, jackals and dhole are seen. Other mammals include sloth bear, otters, pangolin, and giant squirrel. Over 450 species of birds both resident

and migratory have been recorded in the state .According to IUCN rankings White backed vulture and Long-billed vulture are critically endangered, while Malabar pied hornbill and Great pied hornbill are nearly threatened. There is a good replian diversity including the poisonous snake King cobra (Naja hannah). The Western Ghats harbour notably high diversity of amphibians with several of them being endemic. Thirty two species of amphibians have been added from Goa alone to the taxon list. 205 species of fishes have been described from the state of Goa.

- Bhagwan Mahaveer Wildlife Sanctuary harbours rich diversity of butterflies. A total of 133 species was recorded from this area. Out of 133 species recorded 12 species were endemic and 18 species were in different schedules wildlife protection act. Three species are in schedule 1 which gets highest protection. Several species of butterflies are habitat specific and many are known found along riparian habitats. The proposed project impacts the microhabitats in forests and hence the butterflies.

- Aquatic habitat specificity makes Odonates (dragon flies) special group of insects that are sensitive to habitat alteration. They are the health indicators of wetlands. The proposed project area had 57 species of

Odonates that accounted for 33% of species in the Western Ghats. There were 9 species endemic to the Western Ghats. Two species are in IUCN near threatened category and one species in vulnerable category. Siltation and changes in water chemistry would impact the diversity of this group of insects

- There are more than 320 species of fresh water fishes described from the Western Ghats and large numbers of these are endemic to the Ghats. This study has brought out relationship between ecological variables and fish diversity in the proposed project area. The changes in turbidity, salinity and conductivity that results from the different activities proposed during the execution of the project would impact the fish diversity. The pollution of water bodies tends to increase the abundance of omnivore fish population resulting in decline of specialist herbivore, insectivore and algivore species of fishes

- Amphibians are extremely sensitive to habitat modification and they indicate the prevailing condition of an ecosystem. Large numbers of species described from the Western Ghats are endemic. They are found in range of habitats and micro-habitats. There were 24 species of frogs recorded during the study of which 14 species were endemic and 4 species were unique to Castle rock area. One critically endangered and three endangered according to IUCN classification occupies several streams that cut across the existing railway line. Many species apart from the above mentioned also has their home in these streams. Proposed project would definitely impact these species.

- There were 27 species of reptiles recorded during the study. There were 5 species of poisonous snakes recorded during the study. Several species of reptiles were observed on the existing railway line basking, hiding or moving across. Hence the existing railway line provides a good habitat for them. There were 3 snakes and one unidentified lizard which were found killed during the study period. As the study was mainly during the inactive season for reptiles, any major project work during the rainy season (active season) would impact these animals

- Major impact on bird species would be the loss of nesting sites, loss of keystone species and prey availability for the insectivorous birds. 54 nesting cavities were observed along the track during the study. Habitat enrichment and minimum modification of the habitat are the best solution.

- The current study area experiences high level of disturbance due to continuous movement of railways and other private vehicles. Some areas in Bhagwan Mahaveer Wildlife Sanctuary, like Dudhsagar Waterfall, which is a frequently visited tourist spot, are creating pressures on the habitat.

- Both direct method and indirect methods were followed to estimate mammalian population. Indirect evidences belong to mammals such as Sambar, Porcupine, Langur and Civet cats were frequently encountered. There were anecdotal evidences that were obtained for mammals such as Dholes, Tiger/Panther, Bison and four-horned antelope. Major impacts on mammals are accidental killing by trains. Traffic is expected to double with doubling of track and would lead to more such accidents. The habitat modification would impact fruit dependent mammals such as langurs and other smaller mammal.

- Castlerock is located within the Duski River catchment, while remaining part of the existing railway line is in Karanzol River and Dudhsagar River catchment. Karanzol River and Dudhsagar River together form tributary of Mhadei River. Dudhsagar falls is about 14 Kms from Castlerock railway station.

Wild Life Report

Form for seeking recommendation of Standing Committee of NBWL/SBWL.

PART - I & II

(To be filled up by User Agency)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes
(a).Forests Clearance Type : Fresh
(ii). Proposal No. : FP/GA/RAIL/28650/2017
(iii). Name of Project: Kulem–Madgaon Railway Doubling Project
(iv). Short narrative of the Project : Kulem – Madgaon Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial areas in Hospet to Marmugao Port in Vasco. Also both Goa and Hosp
(v). State : Goa
(vi). Category of the Project : Railway
(vii). Shape of project land : Linear
(viii). Distance of the project from the boundary of the Protected Area (in km.): 0.2
(ix). Estimated cost of the Project (Rupees in lacs) : 20700
(x). Total period for which clearance is required (in year): NIL
(xi). Total Project Area(in ha.): 16.514
(xii). Area of Forest Land required for this Project(in ha.): 15.6077
(xiii). Non-Forest Land required for this Project (in ha.): 0.9063
(xiv). Forest Land within Protected Area(in ha.): 14.4185
(xv). Non-forest Land within Protected Area (in ha.): 0.9063
(xvi). Project Area under Protected Area(in ha.): 14.4185
(xvii). Project Area under Non-Protected Area (in ha.): 2.095
(xviii). Project Area inside Wildlife Sanctuaries(in ha.): 14.4185
(xiv). Project Area outside Wildlife Sanctuaries(in ha.): 2.095
(xv). Project Area inside Conservation Reserve(in ha.): 0
(xvi). Project Area outside Conservation Reserve(in ha.): 0
(xvii). Project Area inside National Park(in ha.): 0
(xviii). Project Area outside National Park(in ha.): 0
(xix). Project Area inside Ecologically Sensitive Zone(in ha.): 0
(xx). Project Area outside Ecologically Sensitive Zone(in ha.): 0

A-2. Details of User Agency

(i). Name : South Western Railway Construction
(Ii). Address1 : Rail Vikas Nigam Limited
(iii). Address2 : Addl. General Manager Project-Office, Margao, Goa Block A 3rd floor 5&6 L&L building, Near Matanhy Saldhana Administrative Building Margao, Goa
(iv). State : Goa

(v). District : South Goa
(vi). Pin : 403602
(vii). Landmark : NIL
(viii). Email address : agmpgoa@gmail.com
(ix). Landline Telephone No. : 22342281
(x). Fax No. : 22342281
(xi). Mobile No. : 9108004287
(xii). Website (if any) : NIL
(xiii). Legal status of User Agency : Central Government

A-3. Details of Person Making Application

(i). First Name: DYCE
(ii). Middle Name: Construction
(iii). Last Name: SWR
(iv). Gender: Male
(v). Designation: DYCE
(vi). Address 1: South Western Railway
(vii). Address 2: Office Of the Chif Engineer club Road, Keshwapur, Hubli -580023
(viii). State: Karnataka
(ix). District: Dharwad
(x). Pin: 580023
(xi). Landmark: NIL
(xii). Email Address: agmpgoa@gmail.com
(xiii). Landline Telephone No.: 2289665
(xiv). Fax No.: 08362289665
(xv). Mobile No.: 9108004287
(xvi). Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: Annexure copy of documents in support of the competence

B. Details of Land required for the Project

B-1. Details of Protected Area

B-1.1 No. of Divisions involved in Protected Area

Division wise details of land			
S.no	**Division Name**	**Protected Area Name**	**Project Area under Protected Area**
1.	Wildlife - North	BHAGWAN MAHAVIR WLS	14.4185

B-1.2 Details of Districts involved

District wise breakup			
S.no	**District Name**	**Project Area under Protected Area(ha.)**	**Project Area under Non-Protected Area(ha.)**
1.	South Goa	14.4185	0

B-1.3 Component wise breakup

Component wise breakup			
S.no	**Component**	**Project Area under Protected Area(ha.)**	**Project Area under Non-Protected Area(ha.)**
NIL			

C. Maps of protected area

Division 1. : Wildlife - North

(i). Project Area under Protected Area (in ha.) : 14.4185 **(ii). Nature of the Project :** Linear **(iii). No. of Segments :** One

Patch/Segment wise details		
Segments	**Protected Area of segment(in ha.)**	**KML file of protected area of segment**
1.	14.4185	🌐 View File

(iv). copy of Survey of India Toposheet indicating boundary of protected area: Annexure Survey of India Toposheet

(v). scanned copy of the Geo-referenced map of the protected area prepared by using DGPS or Total Station: Annexure scanned copy of the Geo-referenced map

D. Justification for locating the Project in protected area and details of alternates examined :

(i). copy of note containing justification for locating the Project in protected area: Annexure Justification

(ii). Whether a copy of map indicating location of alternative examined is required to be provided: No

(a). Reason for not providing such map Total Forest & non forest area required for doubling

E. Employment likely to be generated

(i). Whether project is likely to generate employment ?: No

F. Displacement of People due to the project, if any

(i). Whether project involve displacement?: No

G. Status of Environmental clearance

(i). Whether the Project requires Clearance under the Environment (Protection) Act 1986 ? : Yes

(a). Status of the Environmental Clearance to the Project : EC application yet to be submitted

H. Whether proposal is for investigation/survey

(H-2). Details of the Bio diversity Impact Assessment report in case the proposal involves use of more than 50 ha. NP/WLS.

(a).Copy of the Bio diversity Impact Assessment report: Annexure Copy of Bio diversity Impact Assessment report

(H-3). Information on the projects undertaken by the proponent agency in the past in Protected Areas

(a).Upload file: Annexure Information on the projects undertaken by the proponent agency in the past in Protected Areas

(H-4). Details regarding compliance of the conditions on each proposal

(a).Upload file: Annexure Details regarding compliance of the conditions on each proposal

(H-5).Whether any matter related to the project is sub judice in any court of law?: No

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
1	Additional Info.	Appendix
2	Additional Info.	Acknowledgement Slip
3	Additional Info.	Forest Area Details In Protected Area
4	Additional Info.	Minimum Yuse Of Forest Land In Protected Area
5	Additional Info.	Non-Forest Land In Protected Area
6	Additional Info.	Form I & Xiv
7	Additional Info.	Undertaking For Payment Of Net Present Value Of Forest Area
8	Additional Info.	Undertaking For Payment Of Cost Of Compensatory Afforestation
9	Additional Info.	Certificate For Non Violation Of Forest Act,1980
10	Additional Info.	Certificate For The Proposal Does Not Affect Any Monuments
11	Additional Info.	Order Of Work
12	Additional Info.	Justification Letter
13	Additional Info.	Mou Copy
14	Additional Info.	Topo Sheet
15	Additional Info.	Cost-Benefit Analysis

16	Additional Info.	Brief Note
17	Additional Info.	Appendix 2
18	Additional Info.	Tree Enumeration List
19	Additional Info.	Eia Report
20	Additional Info.	Rail Over Bridge
21	Additional Info.	Https://Drive.Google.Com/Open?Id=1ltcujua35xlvpuxuloqz468atrkjsich
22	Additional Info.	Ref: 1-609-Wl&Et(N)/(Part)/19-20/141 Dated 26.04.2019 Observations Recorded By Acf,Wl North Have Been Complied
23	Additional Info.	Proposed Overpass Bridge
24	Additional Info.	Proposed Underpass Bridge
25	Additional Info.	Google Earth Map
26	Additional Info.	Proposed Animal Crossing Bridge List
27	Additional Info.	Letter Containing Description Of Animal Passes
28	Additional Info.	Reply Letter Towards Letter Dated 17/09/2019
29	Additional Info.	Reply Towards Letter Dated 23/10/2019

Acknowledgement Slip

This is to certify that hard copy of the proposal seeking prior approval of Central Government under the Forest (Conservation) Act 1980, as per details given below, along with all necessary enclosures has been received in the Office of the Goa on 14/08/2017.

1. **Proposal No.** : FP/GA/RAIL/28650/2017
2. **Proposal Name** : Kulem-Madgaon Railway Doubling Project
3. **Category of the Proposal** : Railway
4. **Date of Submission** : 14/08/2017
5. **Name of the User Agency with Contact Details**

   Name : DYCE
   Mobile No. : 9108004287
   State : Karnataka
   District : Dharwad
   Pincode : 580023

6. **Area Applied (ha.)** : 15.6077

(System Administrator)

*** This is a system generated email, please do not reply. ***

Collectorate of South Goa,
Margao
Date: 11/12/17
Inward: 29948
Section: 2

SOUTH WESTERN RAILWAY

Office of the
Chief Administrative Officer,
(Construction)
18, Millers Road, Bangalore – 560 046,
080 – 23331816
Fax. 080 - 23330544

No.W.347/MoU/P&D/CN/BNC

Date: 23.03.2011

NOTE

Sub: Memorandum of Understanding (MoU) between Ministry of Railways (MoR) and Rail Vikas Nigam Limited (RVNL).

Ref: Railway Board letter No.2004/WI/RVNL/10 dated 11.01.2010

****

Railway Board vide their letter cited under reference has decided that applications for obtaining CRS sanction for projects being executed by RVNL shall be processed by Construction Organisation of the Zonal Railways. Copy of the Railway Board letter is enclosed for ready reference.

The only work which is entrusted to RVNL on SWR is doubling of Hospet-Hubli-Londa-Tinaighat-Vasco-da-gama section (352.28 km).

CE/CN/UBL is nominated as the nodal Chief Engineer for co-ordination with RVNL and for processing CRS applications for the above work.

Narayanan 23/3/11
(S.S.Narayanan)
CAO/CN/BNC

CE/CN/UBL

C: CE/CN/West, CE/CN/HQ, CE/CN/East, CE/CN/North, CE/CN/Central/UBL

Dy.CE/CN/Central, Dy.CE/CN/HQ, Dy.CE/CN/West, Dy.CE/CN/East,
Dy.CE/CN/North, Dy.CE/CN/Bridges,
Dy.CE/CN/DVG, Dy.CE/CN/MYS, Dy.CE/CN/HAS,
Dy.CE/CN/ II/UBL, Dy.CE/CN/III/UBL, Dy.CE/CN/IV/UBL, Dy.CE/CN/PP/UBL,
Dy.CE/CN/Planning, Dy.CE/CN/Design, Dy.CE/CN/Works/BNC,
Dy.CE/CN/Stores/BNC, Dy/CE/CN/Genl./BNC,

c/- CPM/RVNL/SBC

RECEIVED
24 MAR 2011

रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)

No: AGM/P/Goa/RVNL/47

Date: 29/11/2017

To,
The Dy. Conservator of Forests,
Monitoring & Evaluation,
Panjim-Goa.

Sub: Process of diversion proposal for Kulem to Kalem

Sir,

In connection with the above the diversion proposal has been uploaded in the forest website. Subsequently, it was advised to provide EIA report of this section. Rail Vikas Nigam has engaged IISc Bangalore for preparation of EIA report which is under preparation and will be submitted shortly. In the mean while the agency finalized for execution of the work is not able to commence the work in the Kulem-Kalem section for want of forest clearance. It is request that the diversion proposal may be initiated without waiting for EIA report, which shall be furnished within a months period.

29.11.17

(Sashibhusan Sahoo)
Addl. General Manager
Rail Vikas Nigam Ltd.
Madgaon-Goa.

29/11/17
Office of the
Pr. Chief Conservator
of Forests Panaji

Corporate office : 1st Floor, August Kranthi Bhavan, Bhicaji Cama Place, R.K.Puram, New Delhi-110066 Ph: 011-26738299
Bangalore office : No.15, 1st Floor, "Vectra House", 1st Main, 6th cross, Gandhinagar, Bangalore-560 009. Ph 080-22342281 Fax: 22342282
Project office : Margao/Goa Block A, 3rd floor ,5&6 ,L&L building,Near Matanhy Saldanha Administrative building Margao,Goa PIN-403602. Ph: 0832-2701758

SOUTH WESTERN RAILWAY

Office of the Chief Engineer (Construction)
Club Road, Keshwapur, Hubli-580023
Fax:- 0836-2289665

No. PIU/Goa/QLM-MAO/LA/651 **Date: 14.08.2017**

BRIEF NOTE

Kulem – Kalay Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial units to Marmugao Port in Vasco.

Both Goa and Hospet are tourist destinations and Goa in recent times has become an international hotspot as far as tourism is concerned .The single line does not match up with the increasing outflow of tourists and therefore there is an urgent need for doubling of existing rail line in order to render some additional advantage to cater to the transport of ever increasing tourists. The proposed railway doubling is parallel to the existing railway line which passes through the already existing corridor in the forest.

14-8-17
(Sashibhusan Sahoo)
AGM/P/GOA/RVNL
Phno. +91-9108004287

(Sourabh Srivastava)
Dy. Chief Engineer/CN
South Western Railway
Hubli

APPENDIX

(See Rule 6)

FORM – 'A'

Form for seeking prior approval under section 2 of the proposals by the State Governments and other authorities

Part – 1

(To be filled up by user agency)

1.Project Details:

(i)	Short narrative of the proposal and projects/scheme for which the forest land is required	Kulem – Madgaon Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial areas in Hospet to Marmugao Port in Vasco.
(ii)	Map showing the required forest land boundary of adjoining forest on a 1:50,000 scale map	Enclosed - (Annexure II)
(iii)	Cost of the project	Rs. 207 Crores
(iv)	Justification for locating the project in forest area	The Proposed work is doubling of Kulem – Madgaon Railway line between Km.51600 to 59900
(v)	Cost-benefit analysis (to be enclosed)	Enclosed - (Annexure III)
(vi)	Employment likely to be generated	-

2. Purpose-wise break up of the Total land required : 156077 m^2

Total = 156077 m^2

3. Details of displacement of people due to the project ,if any:

(i)	Number of families	Nil
(ii)	Number od Scheduled Castes and Scheduled Tribe families	Nil
(iii)	Rehabilitation Plan(to be enclosed)	Not Applicable

4. Whether clearance under Environment (Protection) Act 1986 required ? (Yes/No) : NO

5. Undertaking to bear the cost raising and maintenance of compensatory afforestation and/or penal compensatory afforestation as well as cost for protection and regeneration of Safety Zones etc .As per the scheme prepared by the State Government (undertaking to be enclosed) : The undertaking is enclosed (Annexure- IV)

6. Details of certificate /Documents
enclosed as required under the instructions. : Yes,(as below)

1)Project Details - (Annexure I)
2)The Map - (Annexure II)
3)Cost-Benefit Analysis - (Annexure III)
4)Undertaking - (Annexure IV)
5)Land Acquisition Details - (Annexure V)
(Form I & XIV & possession certificate)

Date:__________

Place:_________

State serial no. of proposal __________________

(to be filled up by Nodal Officer with date of receipt)

SOUTH WESTERN RAILWAY

Office of the Chief Engineer (Construction)
Club Road, Keshwapur, Hubli-580023
Fax:- 0836-2289665

JUSTIFICATION FOR LOCATING THE PROJECT IN FOREST LAND

Kulem – Madgaon Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial areas in Hospet to Marmugao Port in Vasco.

Also both Goa and Hospet are tourist destinations. Due to Industrial growth and growth in tourists, the existing Railway single line capacity is saturated. To meet the increasing demand and future growth, the existing Railway single line has to be doubled so that more and more Goods trains/Passenger trains can be run to meet the increasing demand. To minimize the land acquisition, this rail doubling is being done parallel to the existing single line. This is the only Railway line between Hospet and Vasco Port passing through forest land and there is no alternative as the alignment invariably has to pass through the Forest. Since the proposed Railway doubling is parallel to existing Railway line, which passes through the already existing Corridor in the forest, the new doubling Railway line is proposed through same forest along the same Corridor.

14-8-17
(Sashibhusan Sahoo)
AGM/P/GOA/RVNL
Phno. +91-9108004287

(Sourabh Srivastava)
Dy. Chief Engineer/CN
South Western Railway
Hubli

रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)

No: GM/P/Goa/RVNL/F/Description Date: 16/09/2019

To,
The Dy. Conservator of Forests,
Wildlife & Eco-Tourism (N),
Panaji-Goa.

Sub: Castlerock-Kulem Railway doubling in the State of Goa.
Proposal No. FP/GA/RAIL/28650/2017

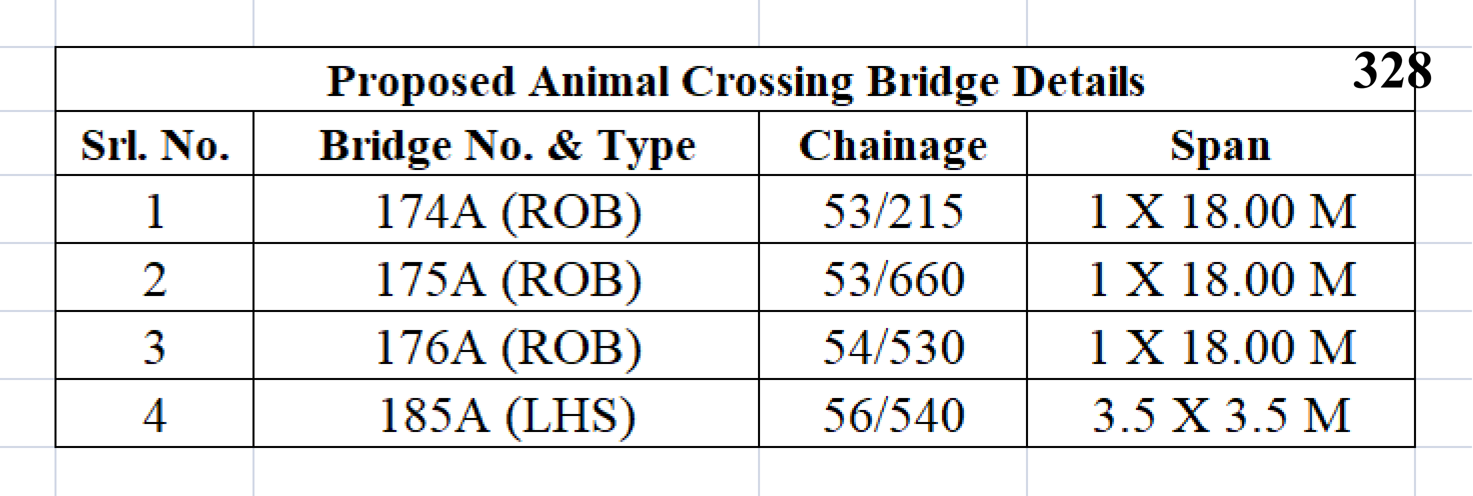
Ref: Your Office letter no. 1-609/WL & ET(N)/19-20/1252 dtd 13.09.2019

Sir,

With reference to the subject cited above, it is informed that in all three overpasses and four underpasses bridges will be constructed along the track from Kulem to Kalem.

The overpass bridges will be of Reinforced Cement Concrete (RCC) structure with natural surfacing such as soil and grass similar to forest grassland and both sides of the bridges will be barricaded to streamline the smooth passage of the animals to bridge so that the animals cross the Railway track through the grass land patch of these overbridges. Bridge list and photos of the proposed bridge is being sent for your reference.

(Sashibhusan Sahoo)
General Manager (Project)
Rail Vikas Nigam Ltd.
Margao-Goa.



Proposed Animal Crossing Bridge Details

Srl. No.	Bridge No. & Type	Chainage	Span
1	174A (ROB)	53/215	1 X 18.00 M
2	175A (ROB)	53/660	1 X 18.00 M
3	176A (ROB)	54/530	1 X 18.00 M
4	185A (LHS)	56/540	3.5 X 3.5 M

रेल विकास निगम लिमिटेड
(भारत सरकार का उपक्रम)
Rail Vikas Nigam Limited
(A Government of India Enterprise)

No: GM/P/Goa/RVNL/F/Description/62 Date: 24/09/2019

To,
The Dy. Conservator of Forests,
Wildlife & Eco-Tourism (N),
Panaji-Goa.

Sub: Kulem-Madgaon Railway doubling in the State of Goa.

Proposal No. FP/GA/RAIL/28650/2017

Ref: Your Office letter no. 1-609/WL & ET(N)/19-20/1252 dtd 13.09.2019

Sir,

With reference to the subject cited above, the following information is furnished for your perusal:

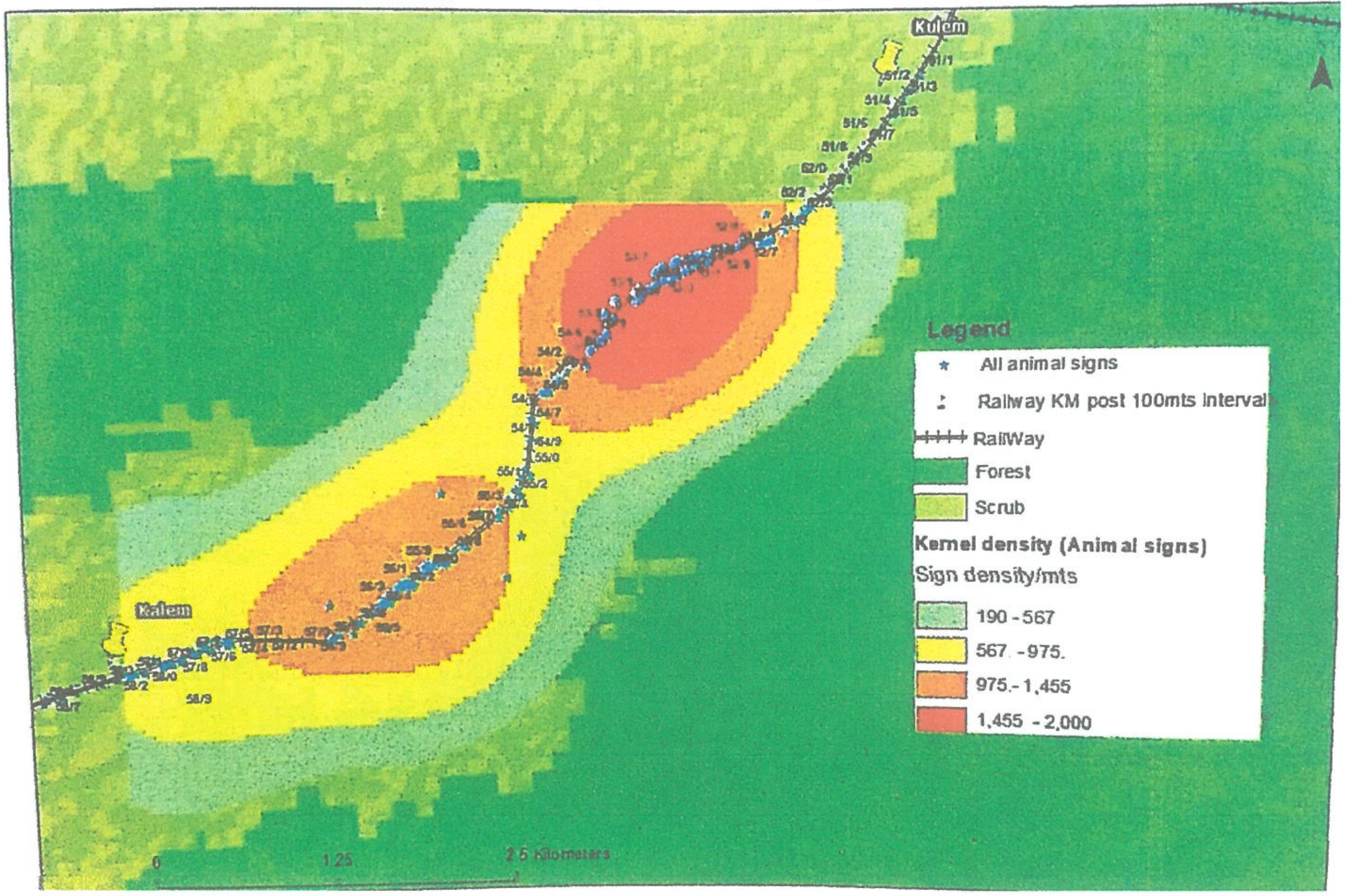
Presently one broad gauge Rail route is existing in the Kulem-Kalem section as early as from the year 1905. Wild animal habitat of the sanctuary is already moving in packs/single on either side of tracks. There are many numbers of waterway crossings (Minor bridges) and river crossings (Viaducts/Major bridges) available in this Railway alignment and as per EIA & Mitigation Measures report, Bangalore they are being used by Wild animals to cross the track. Extract of EIA report showing animal path is enclosed herewith for ready reference.

Cont….2

GM/PROJECT/GOA
RAIL VIKAS NIGAM LTD
MADGAON,GOA

Animal paths/crossing points/along the Railway tracks between Kulem and Kalem stations.

Kernel density analysis for all types of animal signs concentration.


Kulem
Kalem
Legend
All animal signs
Railway KM post 100mts interval
RailWay
Forest
Scrub
Kernel density (Animal signs)
Sign density/mts
190 - 567
567 -975.
975.- 1,455
1,455 - 2,000
0
1.25
2.5 Kilometers

Kernel density of all animal signs recorded between Kulem and Kalem stations.

KDE analysis of Kalem to Kulem railway station;

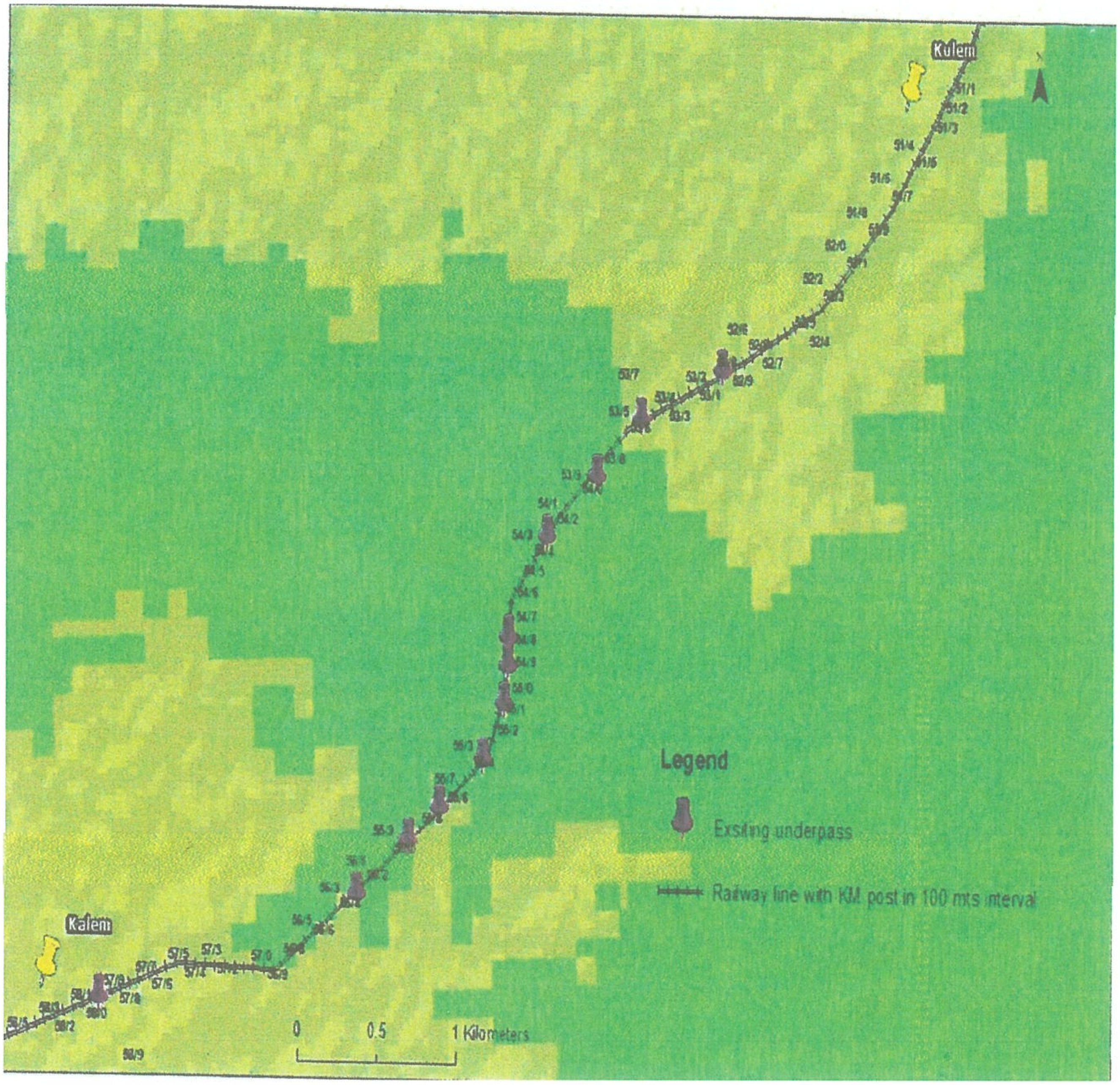
We can clearly identify two major animal sign clusters. The red zone (railway post 52/00 5412) has the maximum number and types of animal signs. We can therefore expect that for Crossing this railway track, animals are using the three underpasses (near railway posts 52/8, 53/5,5378) located within this cluster frequently. Therefore, we can say that these three underpasses have the maximum importance along this entire stretch from Kalem to Kulem station and also that these locations need maximum maintenance to ensure that the passages are kept free for animal movement. The orange zone has two clusters which means that these two zones have medium density of animal signs. There are some underpasses (near railway posts 54/2, 55/3, 55/7, 55/9, 56/1) located along the orange zone, which also need attention. This is depicted from the EIA & Mitigation Measures report.

Cont….3

GM/PROJECT/GOA
AIL VIKAS NIGAM LTD.
MADGAON,GOA

Existing underpasses between Kulem and Kalem as depicted in the Satellite image below:

Existing underpass locations in between Kulem and Kalem stations



In the proposed doubling project, all the existing waterway crossings are being extended and the existing under bridges will be maintained. The underpasses and overpasses bridges will be constructed as per the recommendations by the Wildlife Institute of India, Dehradun and the suggestions given by IISc, Bangalore in the study of Environmental Impact Assessment (EIA) and Mitigation Measures report.

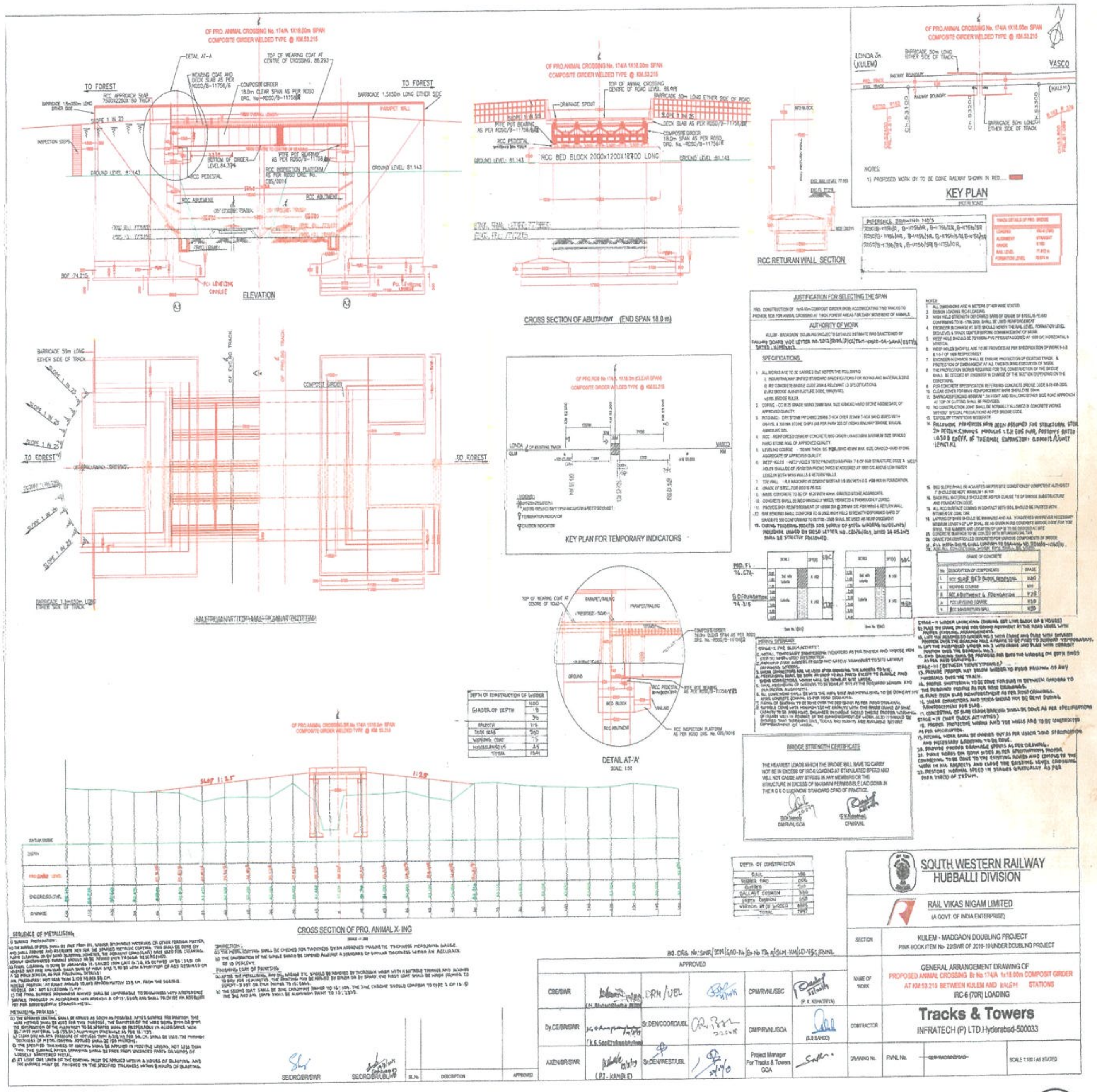
The overpass bridges will be of Reinforced Cement Concrete (RCC) structure with natural surfacing such as soil and grass similar to forest grassland and both sides of the bridges will be barricaded to streamline the smooth passage of the animals to the bridge so that the animals cross the Railway track through the grass land patch of these over bridges. The bridge list is as follows.

Cont...4

GM/PROJECT/GOA
RAIL VIKAS NIGAM LTD.
MADGAON,GOA

Proposed Animal Crossing Bridge Details			
Srl. No.	**Bridge No. & Type**	**Chainage**	**Span**
1	174A (ROB)	53/215	1 X 18.00 M
2	175A (ROB)	53/660	1 X 18.00 M
3	176A (ROB)	54/530	1 X 18.00 M
4	185A (LHS)	56/540	3.5 X 3.5 M

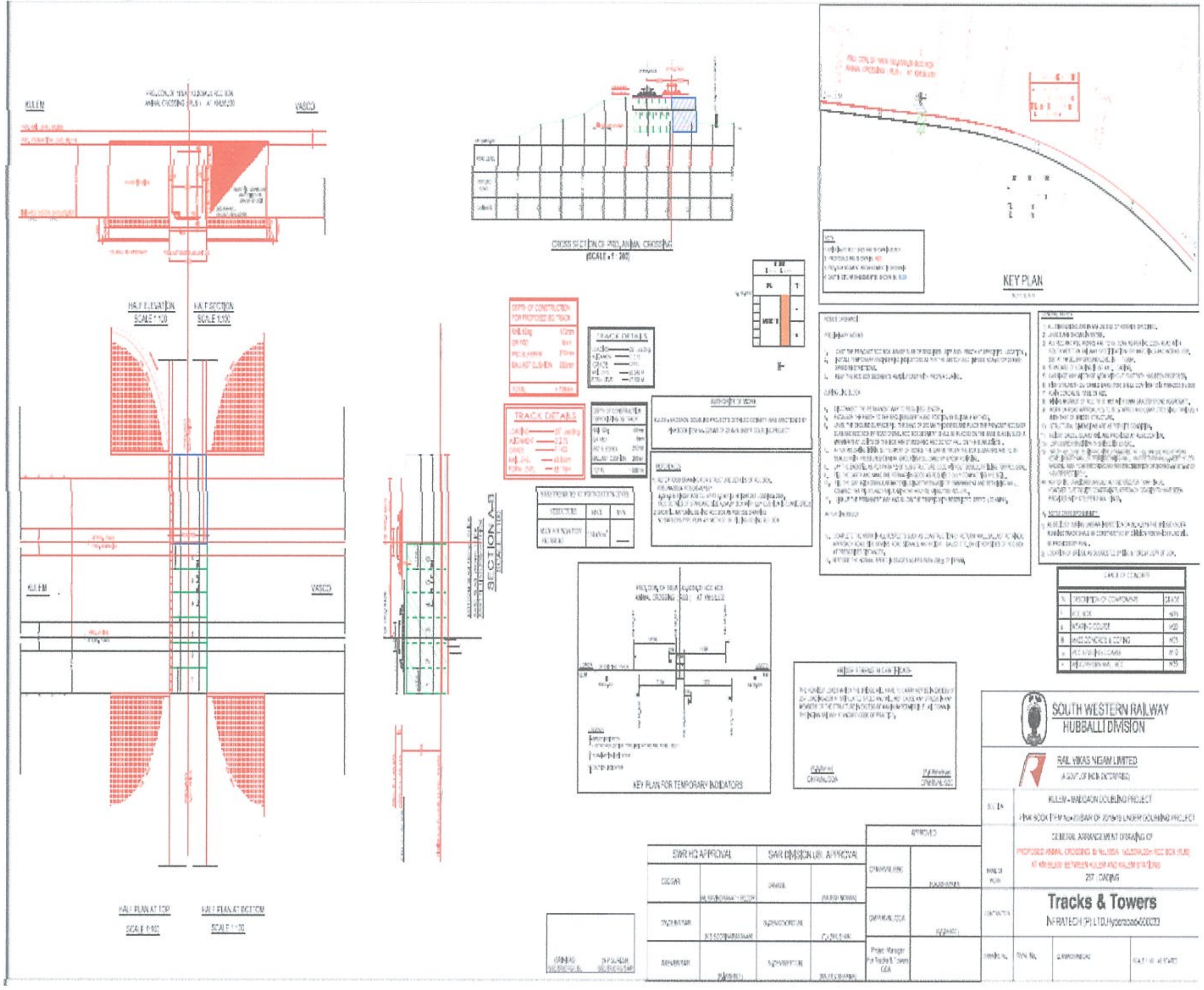
Design of ROB


ELEVATION
CROSS SECTION OF ABUTMENT (END SPAN 18.0 m)
RCC RETURN WALL SECTION
KEY PLAN
KEY PLAN FOR TEMPORARY INDICATORS
DETAIL AT-'A'
CROSS SECTION OF PRO. ANIMAL X- ING
TO FOREST
RCC BED BLOCK 2000x1200x18700 LONG
JUSTIFICATION FOR SELECTING THE SPAN
AUTHORITY OF WORK
SPECIFICATIONS
BRIDGE STRENGTH CERTIFICATE
SOUTH WESTERN RAILWAY
HUBBALLI DIVISION
RAIL VIKAS NIGAM LIMITED
(A GOVT. OF INDIA ENTERPRISE)
SECTION
KULEM - MADGAON DOUBLING PROJECT
PINK BOOK ITEM No- 22/SWR OF 2018-19 UNDER DOUBLING PROJECT
NAME OF WORK
GENERAL ARRANGEMENT DRAWING OF
PROPOSED ANIMAL CROSSING Br No.174/A 1x18.00m COMPOSIT GIRDER
AT KM.53.215 BETWEEN KULEM AND KALEM STATIONS
IRC-6 (70R) LOADING
CONTRACTOR
Tracks & Towers
INFRATECH (P) LTD.Hyderabad-500033
DRAWING No.
RVNL No.
SCALE 1:100 / AS STATED

GM/PROJECT/GOA
RAIL VIKAS NIGAM LTD.
MADGAON,GOA

Cont...5

Design of RUB

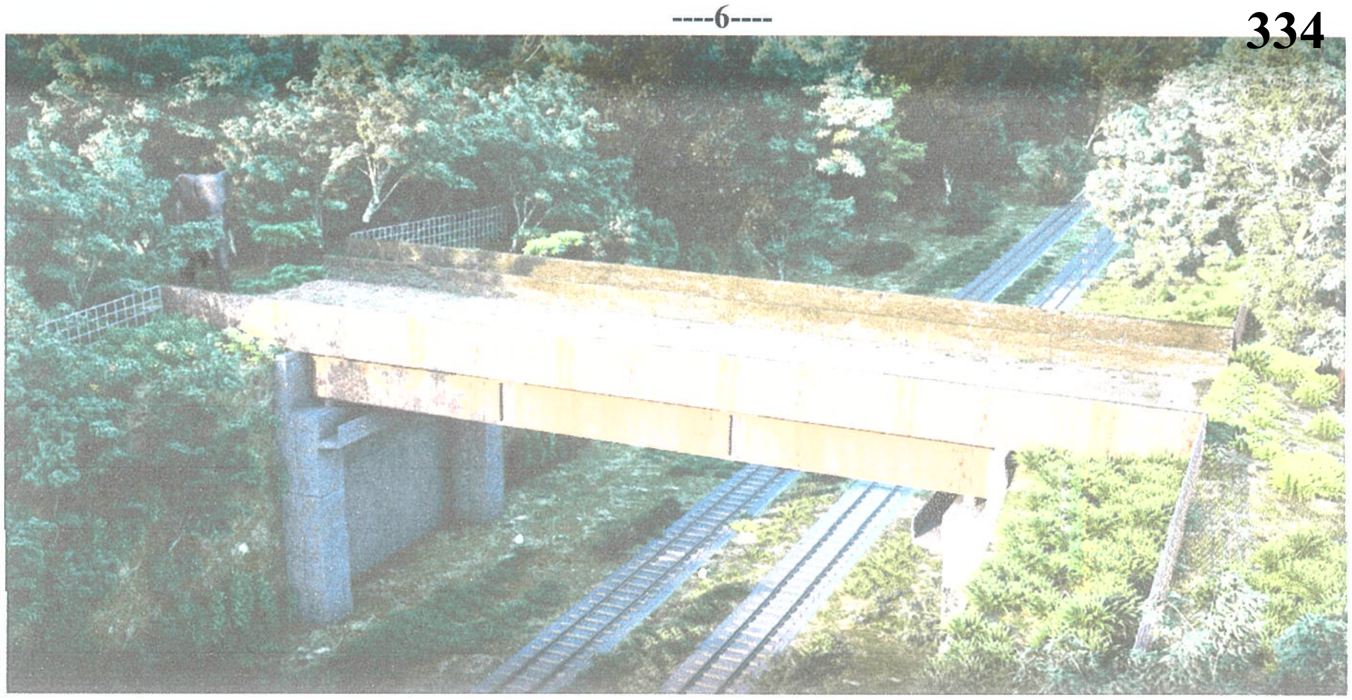

KULEM
VASCO
HALF ELEVATION
HALF SECTION
SECTION A-B
CROSS SECTION OF PROP. ANIMAL CROSSING
KEY PLAN
TRACK DETAILS
KEY PLAN FOR TEMPORARY INDICATORS
HALF PLAN AT TOP
HALF PLAN AT BOTTOM
SOUTH WESTERN RAILWAY
HUBBALLI DIVISION
RAIL VIKAS NIGAM LIMITED
Tracks & Towers
SWR HQ APPROVAL
SWR DIVISION UBL APPROVAL

Photos of the proposed bridges are as follows:

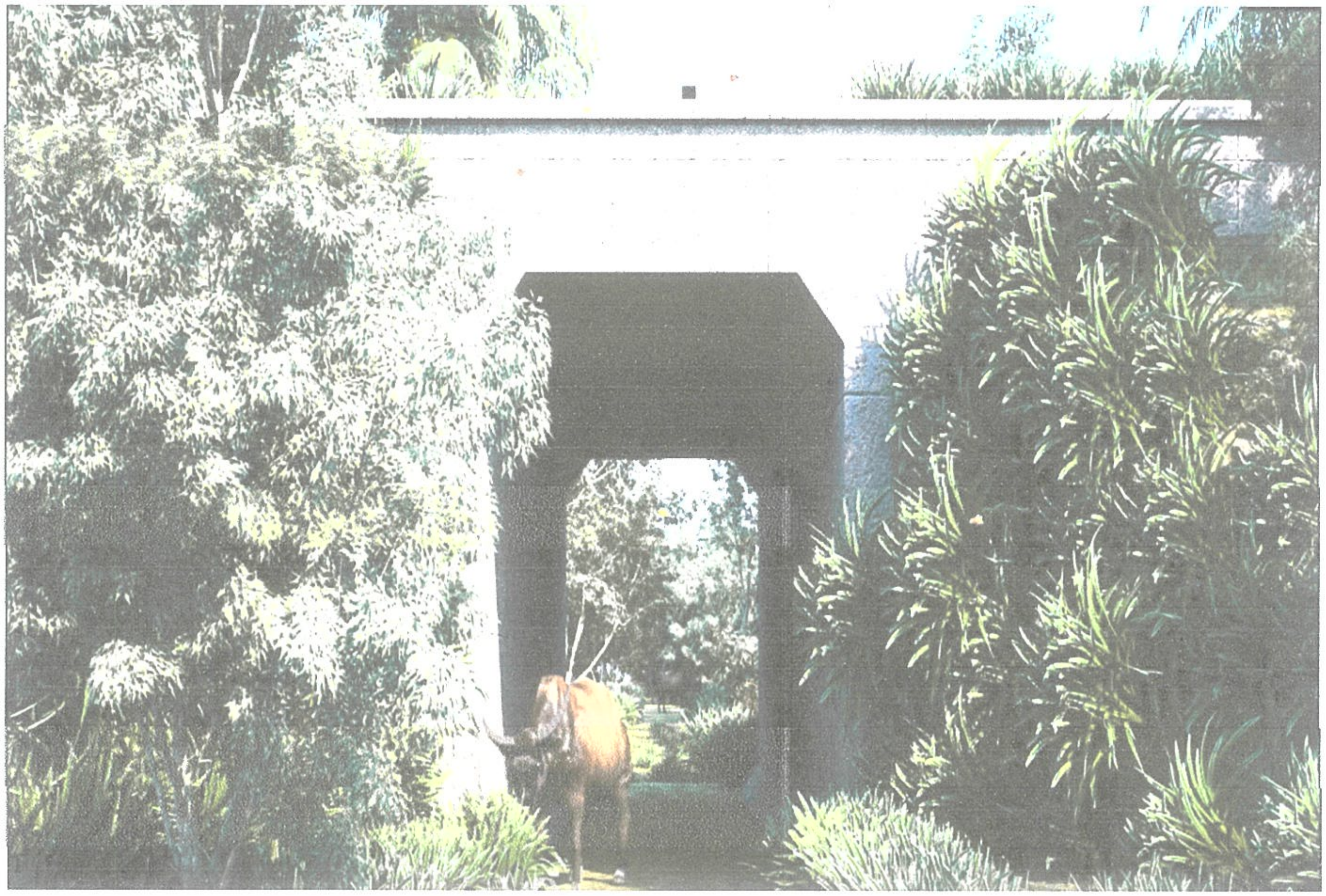
ROBs

GM/PROJECT/GOA
RAIL VIKAS NIGAM LTD
MADGAON,GOA

Cont…6



RUB



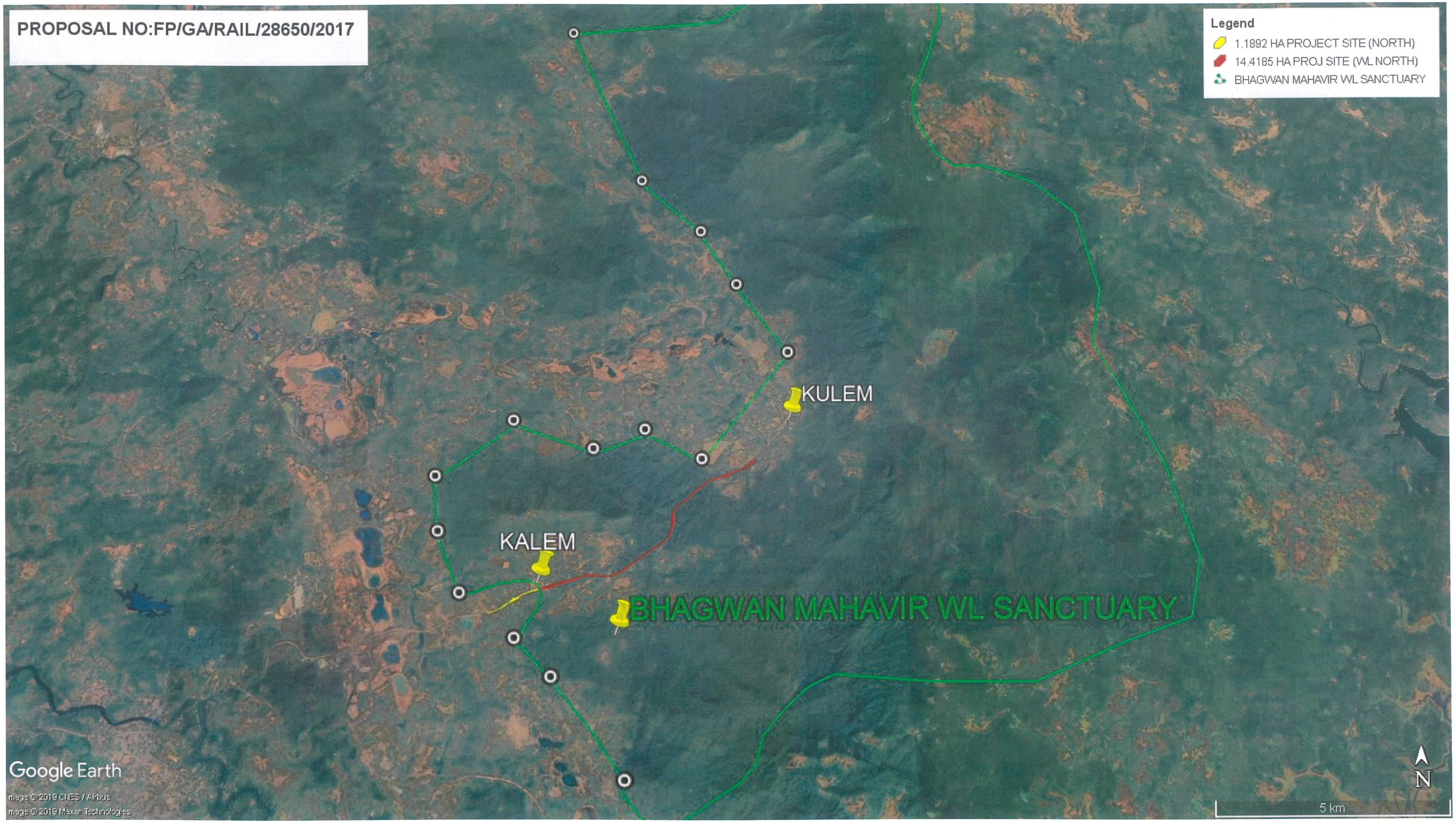
(Sashibhusan Sahoo)
General Manager (Project)
Rail Vikas Nigam Ltd.
Margao-Goa.

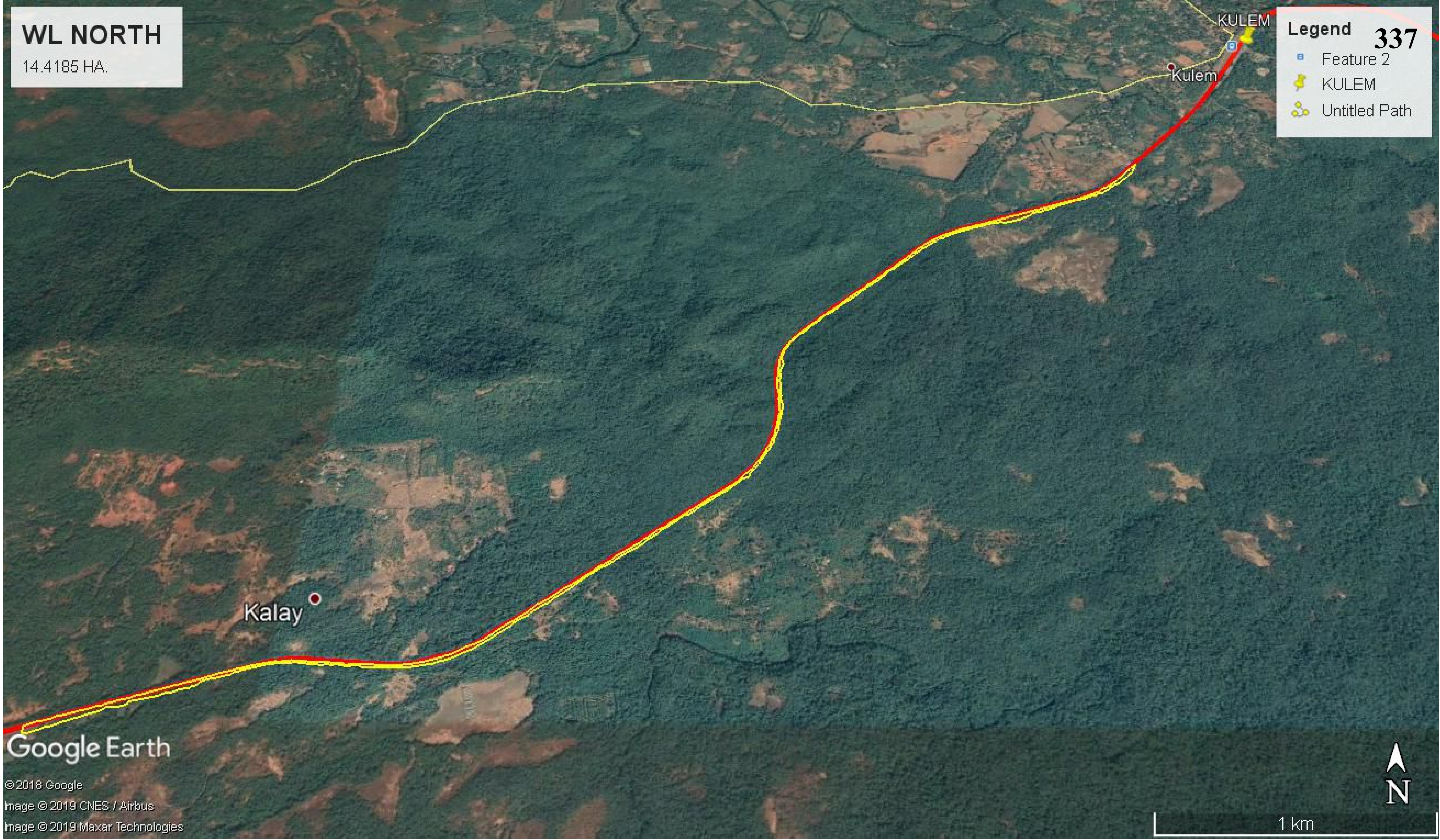
ANNEXURE-1

Proposed ROB (Road Over Bridge) and Animal Underpass (AU) in Railway doubling section from Kulem Railway Station up to Kalem Railway Station in Mollem Wildlife Sanctuary area.

Srl. No.	Chainage	Co-ordinates		Proposal	Provisional Specifications
		Latitude	Longitude		
1	53.215 Km	15.54313056	74.38611111	ROB	1x18.00 meter Composite Girder (18.00 x 10.900m)
2	53.640 Km	15.47663889	73.8222222	ROB	1x18.00 meter Composite Girder (18.00 x 10.900m)
3	53.800 Km	Not available	Not available	New proposed RCC Box culvert	2.450 x 2.340 (Size of opening)
4	54.430 Km	15.31253611	74.21833333	ROB	1x18.00 meter Composite Girder (18.00 x 10.900m)
5	55.600 Km	15.30337778	74.21388889	RCC Box Culvert	1x1 (2.00 mtr x 2.00 mtr) Size of opening
6	55.800 Km	15.30210278	74.21222222	RCC Box Culvert	1x1 (3.00 mtr x 3.00 mtr) Size of opening
7	56.400 Km to 56.500 Km	15.29825000	74.20555556	RCC Box Culvert (Underpass)	1x1 (3.50 mtr x 3.50 mtr) Size of opening

(Sashibhusan Sahoo)
Addl. General Manager
Rail Vikas Nigam Limited
Madgaon-Goa


PROPOSAL NO:FP/GA/RAIL/28650/2017
Legend
1.1892 HA PROJECT SITE (NORTH)
14.4185 HA PROJ SITE (WL NORTH)
BHAGWAN MAHAVIR WL SANCTUARY
KULEM
KALEM
BHAGWAN MAHAVIR WL SANCTUARY
Google Earth
mage © 2019 CNES / Airbus
mage © 2019 Maxar Technologies
N
5 km


WL NORTH
14.4185 HA.
KULEM
Kulem
Legend
Feature 2
KULEM
Untitled Path
Kalay
Google Earth
©2018 Google
Image © 2019 CNES / Airbus
Image © 2019 Maxar Technologies
N
1 km

Annexure 36

Report Part-III

Form for seeking recommendation of Standing Committee of NBWL/SBWL to be filled by Wildlife Warden (Part-III)

A. General Details

A-1. Project Details

(i). Forest Clearance Required?: Yes
(ii). Proposal No. : FP/GA/RAIL/28650/2017
(iii). Name of Project: Kulem–Madgaon Railway Doubling Project
(iv). Short narrative of the Project : Kulem – Madgaon Railway doubling is a part of Hospet – Tinaighat – Castlerock – Kulem – Vasco Railway doubling Project. The existing Railway single line from Hospet – Vasco was laid in 1900 and connects Iron Ore mining / Industrial areas in Hospet to Marmugao Port in Vasco. Also both Goa and Hosp
(v). State : Goa
(vi). Category of the Proposal : Railway
(vii). Shape of project land : Linear
(viii). Estimated cost of the Project (Rupees in lacs) : 20700
(ix). Total period for which clearance is required (in years): NIL
(x). Category of Protected Area: Wildlife Sanctuaries
(xi). Total Project Area (in ha.): 16.514
(xii). Area under Protected Area (in ha.): 14.4185
(xiii). Area under Non-Protected Area (in ha.): 2.095

A-2. Alternative details uploaded by User Agency

Alternative details uploaded by User Agency

No	Total Forest & non forest area required for doubli

A-3. Bio diversity Impact Assessment Report uploaded by User Agency

(i).Bio diversity Impact Assessment Report uploaded by User Agency:	Uploaded file

A-4. Details of division

Division 1. : Wildlife - North
(i). Total Area of the Protected Area (in ha.): 11.54
(ii). Upload copy of Conservation value of the Protected area: Annexure Survey of India Toposheet
(iii). Comments on the proposal with reference to the alternatives considered: There is no alternative
(iv). Comments on the Bio diversity Impact Assessment Report: NA

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification:

Area(ha.)diverted/identified from the NP/WLS/ESZ so far for development and other purpose since it's notification

S.no	Name of project	User Agency	Year	Area Diverted/ Permitted for use(ha.)
1.	Kulem to Madgao Railway Doubling Project	Rail Vikas Nigam Limited	2017	Wildlife - North

Impact(s)due to the diversion of area for the use of land for the projects referred above:

Impact(s)due to the diversion of area for the use of land for the projects referred above

S.no	Name of project	Upload impact report	Area Diverted / Permitted for use
1.	Kulem to Madgao Railway Doubling Project	Annexure Upload impact report	14.4185

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980:

Whether the project proponents have ever committed violation of the Wildlife(Protection)Act, 1972 or Forest Conservation Act,1980									
S.no	**Under Act**	**Name of Project**	**Details of violation**	**Period of work done**	**Area of forest land involved in violation**	**Name of person(s) responsible for violation**	**Designation & Address of person(s) responsible for violation**	**Action taken against the person(s) responsible for violation**	

Any other information that you would like to place on record for decision making:

Documents		
S.No	**Uploaded Additional Info. Files**	**Remarks**
NIL		

(v). Provide comprehensive details of the likely impact of the current proposal in terms of sections 29 and/or section 35(6) of the Wildlife(Protection)Act, 1972 : Annexure Comprehensive letter

(vi).Has any work related to the project proposed been commenced at the proposed location : No

A-5 Site inspection report of the Wildlife Warden/Chief Wildlife Warden highlighting important facts pertaining to the forest land

Division Name	Circle	Site inspected By	Whether site inspected	No. of times site visited	Site inspection report	Date of visit
Wildlife - North	Wildlife and Ecotourism	DFO		Two	PDF	11/01/2019,18/01/2019

(Specific recommendation of the Wildlife Warden/Chief Wildlife Warden with(Part II & III))

A-6 Specific recommendation of the Wildlife Warden/Chief Wildlife Warden for acceptance or otherwise of the proposal with reason

Division	Circle	Recommendation By	Recommendation	Reason	Letter	Whether CF agreed
Wildlife - North	Wildlife and Ecotourism	DFO	Recommended		PDF	

IMPACT OF CURRENT PROPOSAL AND REMARKS:

The railway project of Kulem-Madgaon doubling line will divert forest land of 15.6077 Ha of which 14.4185 Ha will be in Bhagwan Mahavir Wildlife Sanctuary and 1.1892 Ha in Reserve forest. 2217 Nos of trees are enumerated by Railway authorities in 14.4185 Ha of National Park

Doubling of tract will be going to do further fragmentation of an important wildlife refuge and corridor of Goa State.

The doubling of track will involve felling of more than 2217 of trees as per valuation report in Wildlife Sanctuary and will create edge effect by altering plant communities and erode plant diversity at site. Further the gap will promote weeds and exotic species that out-compete native plants and lead to alter animals' use of habitats. Also it involved cutting on Hill side and filling on valley requires blasting operation may cause severe impact of disturbance to wildlife of that particular area in the form of noise and loss of habitat. As the work progress there will be more chances to increase landslides and soil erosion due to heavy rain resulting in damage to vegetation and siltation of rivulets exist in area.

In addition to this changes may occur in ecological and ecosystem process such as pollination, seed dispersal and carbon storage. The maximum portion of area to be acquired and conversion along road section is having steep slope i.e. valley in part of Wildlife Sanctuary and there are every possibilities to cause severe damage to fragile forest ecosystem by soil erosion and landslides, degrade soil quality, and deplete aquatic reservoirs and water catchments of rivers on which wildlife and people depends.

The user agency has agreed to adopt the high costs of wildlife-friendly mitigation measures and agreed to build underpasses and overlays , however there may not be possible to prevent damage cause to wild animals from vehicular traffic passing through protected area , especially at night when, blinded by bright headlights . Over time, as animals learn to avoid roads, busy multilane highways become barriers that hinder wildlife movement, fragment populations, and restrict gene flow.

The user agency submitted a wildlife passage designs as per guidelines framed by Wildlife Institute of India under MoEF & CC, GOI, incorporated wildlife-friendly structural designs such as flyovers or underpasses and Road over pass at suitable sites for local wildlife movement. It will help to make free movement to free ranging animals.

The user agency has proposed construction on Via-duct for the new carriage way in Valley side, which will have minimum impact on wildlife, since it does not requires any blasting. As per present alignment of rail plan involves minimum acquisition of forest land of Bhagwan Mahaveer Wildlife Sanctuary and no major portion of habitation existing in the proposed alignment. Also proposed 2 lane and existing 2 lane realignment will come on valley side and land required is only at Pier location, so the disturbance will be minimal.

Further on completion of construction phase, the faunal Spp will not get affected as provision for crossing project will be ready and not obstruct their free movement. Also, trees listed for felling under this project will be compensated in long term through the proposed avenue plantation Programme covering about more than 20,000 no. of trees.

Recommendations:-

As the terrain is undulating hilly with heavy rainfall and gradient above 30′ the alignment of rail way is highly vulnerable to soil erosion as such all precaution measures are to be taken to control soil erosion and washout of soil in the forest stream and in forest which may degrade flora of forest of Wildlife Sanctuary. The precautions are to be taken in respect to soil erosion by construction of rubble wall bandaras across the contour lines so that soil should not be wash away and soil erosion is controlled. The site is inspected and all possible under passes and over passes are recommended with dimensions as per the size of animals. These underpasses will reduce the death of Wildlife by accidents. The user agency should in particular look often this factors while execution of the project.

User agency will also undertake works for putting proper signage to control speed limit to allow wild animals on priority, not to light fire in wildlife sanctuary area, not to litter in wildlife sanctuary area, speed limits to train and GPS control on speed of train. No labour camp allowed in Wildlife Sanctuary and all restriction on labours working in Wildlife Sanctuary. Similarly put a proper big board at entry point on both sides to caution vehicle driver that they are entering wildlife sanctuary. The structure like fire watch towers, fire post, fencing for wildlife at some places, regular fire lines along the track may be provided.

This proposal is approved in Principal in the state Wildlife Advisory meeting dated 12/10/2016 and 16/12/2017

Considering all above recommendation the proposal is recommended.

Dy. Conservator of Forests
Wildlife & Eco- tourism (N)

Annexure 37

EXCERPTS FROM THE EIA REPORT SUBMITTED FOR THE DOUBLE TRACKING OF THE RAILWAY LINE FROM KULEM TO MADGAON:

- The forest area between Sonalium-Kulem-Kalem is presently under the Bhagavan Mahavir Wildlife Sanctuary. Though there is no area specific study on the fauna of this area, there are some anecdotal studies that records different faunal assemblages in the state of Goa. Jadav & Pa (2012) from Zoological Survey of India, recorded fauna such as Tiger, leopard-, barking deer, mouse deer, sambar-, spotted deer, wild boar, pangolin, slender loris-Loris, bonnet macaque, common langur, Civet cat , flying squirrel-, Gaur- and Giant squirrel . Forest Department of Goa listed 42 mammalian species in this area
- Most of the existing underpasses are small and act largely as water ducts rather than as passages for the movement of animals across the track; hence, they need to provide additional larger underpasses that would permit the movement of animals, both small and large
- Some underpasses (Box culverts) can be made between Rly Km post 44/7 to 49/3 on the Kulem to Sonalium sector (Fig. 2.6). As gaur signs are concentrated between Rly Km post 47/6 to 48/0, one large sized underpass (Box culvert) can be constructed along this stretch of the railway track.
- Two large-size underpasses can also be provided in between Km post 52/7 to 54/0 and 57/2-58/1, where gaur signs were common in between Kulem to Kalem Station. Existing underpass locations (Fig. 2.4 & Fig. 2.8) appear to be small in size for animal crossing and these can be made bigger size in terms of breadth and height so that animals can cross through them easily.
- Low fencing can be erected on both sides of the railway track at certain places to funnel smaller mammals towards an underpass. Specific stretches,

except for high terrain, may also be fenced where needed to guide larger animals towards a bigger underpass.

- For arboreal species (especially Malabar Giant Squirrel but also primates such as Bonnet macaque and South Indian Grey plains langur) the construction of a canopy bridge using low cost material may be needed to ensure their crossing over the track.
- During the discussions there were suggestions for “barricading” certain high animal usage stretches of the track and allowing them entry only through the underpasses. However, barricading can introduce fresh problems such as animals straying on to the tracks and getting trapped, sneaking through an improperly designed barricade and unable to escape an approaching train, etc.
- Finally, we recommend a year-long monitoring on effectiveness of the barricade as well as underpasses by a reputed technical institution that would help in course correction in both design and the strategy to permit animals to cross the tracks and avoid accidents.

Annexure 38

F. No. 11-37/2016-FC
Government of India
Ministry of Environment, Forest and Climate Change
(Forest Conservation Division)

Indira ParyavaranBhawan,
Jor Bagh Road, Aliganj,
New Delhi-110003.

Dated: 5th December, 2017

To

The Principal Secretary (Forests),
All States / Union Territories.

Sub: Applicability of Forest (Conservation) Act, 1980 and Wildlife (Protection) Act, 1972 on the forest land falling in the Right of Way (RoW) of the Railway in light of the provisions of the Railway Act, 1989 - regarding.

Sir,

Kindly refer to the above mention subject. The questions have been raised by the Ministry of Railway on various occasions regarding applicability of the Forest (Conservation) Act, 1980 (FC Act in short) and Wildlife (Protection) Act, 1972 (WPA in short) and it has been insisted upon by the Railway that the FC Act and WPA will not be applicable to the forest land falling in the right of ways of the Railway and the Railways has the power to acquire the forest land and divert the forest land falling in the ROW under section 11 (a) of the Railway Act of 1989.

2. In the instant case of gauge conversion [Meter Gauge (MG) to Broad Gauge (BG)] of existing Akola-Khandwa railway line, constructed during 1955-59, was referred to MoEF & CC by the Ministry of Railway stating that the FC Act and WPA will not be applicable in ROW of Railways. The existing MG railway track passes through the Reserved Forest and Melghat Tiger Reserve which is among the first nine tiger reserves notified in 1973-74 under the Project Tiger.

3. The MoEF& CC has been repeatedly clarifying that the FC Act and WPA will be applicable for diversion of forest land for non-forestry purpose irrespective of the ownership of the forest land and the forest land owned by the State cannot be acquired and transferred to Railways under section 11 (a) of the Railway Act of 1989 without following provisions of FC Act and WPA.

4. It is informed that the matter has been examined in the Ministry and the legal opinion of the Ministry of Law and Justice (MoLJ) was also obtained on the applicability of the Forest (Conservation) Act, 1980 on the use of forest land falling in the Right of Way (ROW) of the Railway for construction of new railway line and conversion of gauge from existing Meter Gauge (MG) to Broad Gauge (BG) and applicability of provisions of the Railway Act, 1989. The MoLJ has opined on 28.09.2017 that "though the railway administration has the power under section 11 (a) of the Act of 1989, to construct or maintain a railway on any land, but it appears that for so assignment of forest land (other than the railways land) falling in the ROW to the railway by way of lease or otherwise may attract the provisions of the Act of 1980."

5. It is important to note that the 'forest' land has been defined by the Hon'ble Supreme Court in the T.N. Godavarman Thirumulkpad Vs Union of India & Ors on 12th December, 1996 whereby it has been clarified that the word "forest" must be understood according to its dictionary meaning irrespective of its ownership.

> " *The Forest Conservation Act, 1980 was enacted with a view to check further deforestation which ultimately results in ecological imbalance; and therefore, the provisions made therein for the conservation of forests and fore matters connected therewith, must apply to all forests irrespective of the nature of ownership or classification thereof. The word "forest: must be understood according to its dictionary meaning. This description covers all statutorily recognized forests, whether designated as reserved, protected or otherwise for the purpose of Section 2(i) of the Forest Conservation Act. The term "forest land", occurring in Section 2, will not only include "forest" as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership. This is how it has to be understood for the purpose of Section 2 of the Act. The provisions enacted in the Forest Conservation Act, 1980 for the conservation of forests and the matters connected therewith must apply clearly to all forests so understood irrespective of the ownership or classification thereof.* "

6. In other words, even 'forest land' owned by the railways is also 'forest' and cannot be put to non-forestry use by the railways itself without the approval of the Central Government as provided in the section 2 of the Forest (Conservation) Act, 1980. In addition to this, for the use of forest land declared as 'Protected Areas' and areas falling under the Eco Sensitive Zone (ESZ), the approval of State Board of Wildlife and National Board of Wildlife (NBWL) is required.

7. The Ministry is of considered opinion that the railways has the right of ways for construction and maintenance of railways lines for public welfare and may acquire land from the owners of the land but this right is also subject to the other statutory provisions and regulations. If a forest land cannot be dispensed with for the railway track in view of the conservation of forest and wildlife, then the Railway cannot acquire forest land under section 11 of the Railway Act, 1980 without the prior approval under FC Act, 1980. The State Government also cannot assign and allot forest land, which is not the property of the Railways, to Railways without the prior approval of the Ministry under section 2 of the FC Act, 1980 and the NBWL if the area falls in the protected area notified under the provisions of the Wildlife (Protection) Act, 1972. However, any actual diversion of forest land for non-forestry purpose already done before 25.10.1980 will not attract provisions of FC Act and this position was clarified by the Ministry vide guideline dated 13.10.2016 though clearance under WPA will be required if Protected areas are involved.

8. Railway projects passing through the notified Eco-sensitive Zone or located within 10 km. radius of Wildlife Sanctuary (WLS) / National Parks (NP) and Tiger Reserves (TR) are not required to obtain wildlife clearance from National Board of Wildlife as these projects do not need Environment Clearance. However, railway projects passing through the areas linking one protected area or Tiger Reserve with another protected area or Tiger Reserve diversion cannot be allowed for ecologically unsustainable use, except in public interest with

the approval of NBWL on the advice of National Tiger Conservation Authority as provided for under sec 38(O)(1)(g) of Wildlife (Protection) Act, 1972.

Railway projects passing through Wildlife Sanctuary / National Parks / Tiger Reserves amount to destruction of habitat within the meaning of Section 29, Section 35(6) and Section 38(O)(1)(g) of Wildlife (Protection) Act, 1972 as amended upto date are required to seek the approval of National Board of Wildlife (NBWL). The need of seeking approval for railway projects passing through a Wildlife Sanctuary is in pursuance of Supreme Court Order dated 09.05.2002 in Writ Petition (Civil) No. 337 of 1995 (Centre for Environmental Law, WWF-India Vs. Union of India & Ors.).

9. In light of the above it is further clarified that the use of forest land, irrespective of ownership, by the railways for construction of new railway track and other facilities and for gauge conversion of existing railways requiring fresh diversion of forestland on either side of the existing Meter Gauge (MG), as assessed by the State Forest Department, falling in the ROW of railway, will require forest clearance under the provisions of Forest (Conservation) Act, 1980.

This issues with the approval of competent authority.

Yours faithfully,

05/12/17
(Naresh Kumar)
Dy. Inspector General of Forests

Copy to:

1. All PCCFs States/UTs
2. All Regional Office, MOEF&CC
3. Secretary, M/o Railways, New Delhi
4. Nodal Officers (FCA) O/o the PCCFs All States/UT
5. All IGFs/Dir(ROHQ)/All AIGFs(FC), MOEF&CC New Delhi
6. PPS to Secretary, MOEF&CC, New Delhi
7. PPS to DGF&SS, MOEF&CC New Delhi
8. PPS to IGF(FC)
9. Guard File

05/12/17
(Naresh Kumar)
Dy. Inspector General of Forests

Annexure 39

News article in ‘The Hindu’ dated 08.04.2020

NATIONAL

Apex wildlife panel holds virtual conference, clears infra projects

Jacob Koshy

NEW DELHI, APRIL 08, 2020 21:35 IST

Approved wildlife clearance for a number of developmental projects by 11 States: Javadekar

The Standing Committee of the National Board for Wildlife had its first ever video-conferencing meet on Monday where infrastructure projects in 11 States were cleared, Environment Minister Prakash Javadekar tweeted.

“I chaired the meeting of standing committee of NBWL through videoconference and approved wildlife clearance for a number of developmental projects by 11 States,” it read.

Two were infrastructure proposals related to setting up power transmissions line and constructing a highway in Goa, which would “boost tourism.”

Other projects included the Nagpur-Mumbai superhighway, a small-scale stone mining project in Kota, Rajasthan; an underground pumped storage facility for generating hydroelectricity; an Indian railways project to make a railway bridge in Madhya Pradesh and Telangana, irrigation projects in Uttarakhand and Telangana and defence projects in Uttarakhand, according to his tweets.

Projects that encroach into forests or protected reserves require NBWL nod as part of the government’s environmental clearance process. Projects are appraised at a State level and then subsequently presented to a large committee of wildlife experts, the Chief Wildlife Wardens of States, top officials in the Union Environment Ministry and Forest Ministry and, the Environment Minister.

Plans to hold a videoconference were announced on March 11, a note from the Environment Ministry’s Wildlife Division says.

‘Scrutiny of maps tough’

An expert who was privy to the process said most of the projects were given “in-principal approval” though only the formal minutes of the meeting would reveal the conditions which projects would have to adhere to.

“In a virtual conference, it’s difficult to scrutinise maps that show the location of the proposed projects. There was also no occasion to ask questions of officials for clarifications,” he told *The Hindu* on condition of anonymity

GOA
FOUNDATION

G-8, St Britto's Apartments, Feira Alta, Mapusa 403507 Goa, INDIA
Tel: +91-(0)832-2256479; 2263305 *(also fax)*
E-mail: goafoundation@gmail.com *Website:* www.goafoundation.org

11.6.2020

To:

The National Tiger Conservation Authority
B-1 Wing, 7th Floor,
Pt. Deendayal Antyodaya Bhawan
CGO Complex, New Delhi 110003
Email: aig3-ntca@nic.in

Sub: Approval of 3 infrastructure projects in Goa's Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park without prior NTCA advice

Dear Sir,

I wish to draw your attention to the recent approvals granted by the Goa State Wildlife Board and the National Board for Wildlife (Standing Committee) to three major infra-structure projects which – as proposed through the Goa's Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park (BMWLS&NP) –threaten to fragment and damage the protected areas mentioned to the detriment of wildlife, especially the tiger.

These 3 projects include (1) the proposal of the PWD, Goa, for the 4-laning of National Highway 4A – for the stretch of km 84 to km 96 – that passes through BMWLS & NP; (2) the Goa-Tamnar Transmission Project to construct 3.5 km transmission line through the BMWLS & NP; and (3) the South Western Railway's project for doubling of the section of the railway line from Castlerock to Vasco that also passes through the BMWLS & NP. It is undoubted that all three projects will fragment the PAs beyond recovery.

The Goa Foundation has already filed a complaint before the Central Empowered Committee in respect of these approvals being granted without proper study and assessment of the impact of these projects. The CEC has issued notice on our complaint.

From all the documents that we have studied relating to these three projects, their impact on the tiger reserve proposed by the NTCA and by the state of Goa – which extends over the core zones of all 4 wildlife sanctuaries (Madei, Bhagwan Mahavir (including Mollem NP), Netravali and Cotigao – has not been considered by the Chief Wildlife Warden, the State Government, the State Wildlife Board or any of the project implementing authorities. In fact, the NTCA is nowhere in the picture!

Section 38-O (g) of the WLPA requires the NTCA to ensure that the tiger reserves and areas linking one protected area or tiger reserve with another protected area or tiger reserve are not diverted for ecologically unsustainable uses. Proposals for any activities in such areas duly notified by NTCA, and recommended by it in accordance with these provisions, to be covered under such regulation can be permitted only in public interest, after seeking recommendations of the Standing Committee of NBWL – which has to be based on specific advice of the NTCA. The BMWLS&NP is not only contiguous to the Anshi Dandeli Tiger Reserve, it has also, along with the remaining contiguous sanctuaries in Goa, been notified as a vital tiger corridor by the NTCA. However, to the best of our knowledge, no recommendation or advice has been sought or granted by the NTCA prior to approval of any of these three projects by the Standing Committee of the NBWL.

In this connection, we wish to draw your attention to your own reports submitted after the NTCA's investigation into the killing of four tigers in Madei Wildlife Sanctuary when the authority had occasion to make several severe observations relating to the management of Goa's wildlife sanctuaries. Instead of taking steps to drastically improve the conditions of these PAs in line with the NTCA's recommendations, the forest department (Goa) and its wildlife division have – without a second thought – granted approvals for these three destructive projects without even considering the fact that they fall within the proposed tiger reserve approved not only by the department but by the State Wildlife Board itself.

In fact, the Goa Foundation has already filed a PIL in the Bombay High Court for directions to the government to notify the tiger reserve without delay. I am enclosing a copy of the writ petition filed whose hearing has been delayed due to the Covid19 pandemic.

I hope that you will urgently write to the state government drawing its attention to the matter and ensuring that, under no condition, any further work is done on these projects till they are properly assessed for their impact on the proposed tiger reserve by the NTCA.

Yours faithfully,

Dr Claude Alvares
Director

Encl: Copy of the PIL filed on Goa Tiger Reserve

Annexure 41

F. No. 6-1/2006 WL-I(pt)
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
NATIONAL BOARD FOR WILDLIFE

PARYAVARAN BHAWAN,
CGO COMPLEX, LODI ROAD,
NEW DELHI-110003
DATED: 14th September 2010.

NOTIFICATION

In exercise of the powers conferred by sub-section (1) of section 5B of the Wild Life (Protection) Act, 1972 (53 of 1972), read with rule 11 of the National Board for Wild Life Rules, 2003, the National Board for Wild Life hereby constitutes the Standing Committee of the National Board for Wild Life consisting of the following members, namely:-

1	Minister in charge of Environment & Forests	**Chairman**
2	Director General of Forests & Special Secretary, MOEF	Member
3	Director, Wildlife Institute of India, Dehradun	Member
4	Representative of Bombay Natural History Society (BNHS), Mumbai	Member
5	Representative of Satpuda Foundation, Amravati	Member
6	Representative of Nature Conservation Foundation, Mysore	Member
7	Shri Brijendra Singh	Member
8	Dr. M.K. Ranjitsinh	Member
9	Dr. Divyabhanusinh Chavda	Member
10	Dr. A.J.T. Johnsingh	Member
11	Ms. Prerna Bindra	Member
12	The Director, Wildlife Preservation.	**Member-Secretary**

2 Powers of the Standing Committee:-

Subject to the general superintendence, direction and control of the National Board for Wild Life, the Standing Committee may exercise all the powers exercisable by the National Board for Wild Life under the Wild Life (Protection) Act, 1972 (53 of 1972) or the rules made there under, unless otherwise specified in this notification.

3 Duties and Functions of the Standing Committee: -

The Standing Committee shall perform the following duties, namely : -

i) to promote the conservation and development of wild life and forests by such measures as it thinks fit;
ii) to advise the Central Government and the State Governments on the ways and means of promoting wild life conservation and effectively controlling poaching and illegal trade of wild life and its products;
iii) to make recommendations on setting up of and management of National Parks, Sanctuaries and other Protected Areas and on matters relating to restriction of activities in those areas;
iv) to carry out or cause to be carried out impact assessment of various projects and activities on wild life or its habitat;
v) to review from time to time, the progress in the field of wild life conservation in the country and suggest measures for improvement thereto; and
vi) to prepare and publish a status report on wild life in the country once in two years.

4 Meetings: –

i) The Standing Committee shall ordinarily meet once in three months at a place to be decided with the approval of the Chairman.

ii) The Member-Secretary shall prepare agenda items for the meeting, obtain approval of the Chairman and circulate it to all members at least fifteen days prior to the date of such meeting.

iii) The Member-Secretary shall prepare the minutes of the meeting and circulate it to all members within thirty days of the meeting after obtaining approval of the Chairman.

iv) The Member-Secretary shall also initiate follow up action on the decisions of the Standing Committee.

5 Disclosure of interest by members : –

If any member of the Standing Committee or any member of his family has any interest in a proposal submitted for consideration of the Standing Committee, the member shall disclose the extent of his interest in the proposal.

6 Presiding over the meetings of the Standing Committee: –

The Chairman shall preside at every meeting of the Standing Committee at which he is present, and in his absence, the members present shall elect one of them to preside, at that meeting.

7 Quorum: –

i) The quorum necessary for the transaction of business at a meeting of the Standing Committee shall be one-half of the total number of members.

ii) If at any time there is no quorum, the Chairman or the person presiding over a meeting shall adjourn the meeting until there is a quorum.

8 Record of business : –

i) The record of business transaction at every meeting of the Standing Committee shall be prepared by the Member- Secretary for approval by the Chairman or the Member presiding at such meeting.

ii) When any business is transacted by circulation of papers, the Member-Secretary shall prepare a record of the business so transacted for approval by the Chairman of the Standing Committee permitting the circulation.

iii) The record of business transacted at every meeting of the Standing Committee shall be approved and signed by the Chairman or the member presiding at such meeting, and the approved record of business shall be circulated to all the members.

iv) All records shall be maintained by the Member - Secretary of items of business transacted by the Standing Committee or the committees, sub-committees, task forces, study groups or advisory bodies thereof.

9 Delegation of powers to appoint Committees, etc :-

i) On behalf of the National Board for Wild Life, the Standing Committee may exercise its powers under sub section 3 of section 5-B of the Wild Life (Protection) Act, 1972 to constitute committees, sub committees, study groups, task forces or advisory bodies as may be necessary.

ii) The Standing Committee shall also determine the terms of reference, tenure, membership and other related aspects as may be necessary in respect of such committees, sub committees, study groups, task forces or advisory bodies as may be constituted by it.

(A. K. Srivastava)
Inspector General of Forests(WL) &
Director, Wildlife Preservation

"(i) प्रोफेसर रमन सुकुमार,

(ii) डा. एच.एस. सिंह ।";

(iv) खंड (फ) में, क्रम संख्या और उससे संबंधित प्रविष्टियों के स्थान पर, निम्नलिखित क्रम संख्या और प्रविष्टियां रखी जाएंगी, अर्थात् :–

"(i) आंध्र प्रदेश,

(ii) गोवा

(iii) राजस्थान,

(iv) उत्तराखंड,

(v) अंदमान और निकोबार द्वीप ।"।

[फा. सं. 6-46/2013-डब्ल्यू एल]

डॉ. एस.एस. गर्बयाल, वन महानिदेशक और विशेष सचिव तथा
निदेशक, वन्य जीव संरक्षण

टिप्पण : —मूल नियम, भारत के राजपत्र, असाधारण में सं. का.आ. 1093(अ), तारीख 22 सितंबर, 2003 द्वारा प्रकाशित किए गए थे और तत्पश्चात् का.आ. 1249(अ), तारीख 8 नवम्बर, 2004; का.आ. 1324(अ), तारीख 1 दिसंबर, 2004; का.आ. 802(अ), तारीख 16 मई, 2007 और का.आ. 483(अ), तारीख 25 फरवरी, 2010 द्वारा संशोधित किए गए ।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 22nd July, 2014

S.O. 1886(E).—In exercise of the powers conferred by sub-section (1) of Section 5A of the Wild Life (Protection) Act, 1972 (53 of 1972) read with sub-rule (4) of rule 3 of the National Board for Wild Life Rule, 2003, the Central Government hereby nominates the following as members to the National Board for Wild Life and makes the following further amendments in the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1093(E), dated 22nd September, 2003, namely:—

In the said notification,—

(i) in clause (c), for the serial numbers and entries, the following serial numbers and entries relating thereto shall be substituted, namely :—

"(i) Dr. Jyoti Dhurve, Lok Sabha,

(ii) Shri Dushyant Singh, Lok Sabha,

(iii) Dr. M.S. Gill, Rajya Sabha.";

(ii) in clause (e), for the serial numbers and entries relating thereto, the following serial numbers and entries shall be substituted, namely :—

"(i) Gujarat Ecological Education and Research (GEER) Foundation, Gandhinagar, Gujarat.";

(iii) in clause (f), for the serial numbers and entries relating thereto, the following serial numbers and entries shall be substituted, namely :—

" (i) Prof. Raman Sukumar,

(ii) Dr. H.S. Singh.";

(iv) in clause (v), for the serial numbers and entries relating thereto, the following serial numbers and entries shall be substituted, namely:—

" (i) Andhra Pradesh,

(ii) Goa,

(iii) Rajasthan,

(iv) Uttarakhand,

(v) Andaman and Nicobar Islands.".

[F. No. 6-46/2013-WL]

Dr. S.S. GARBYAL, Director General of Forests and Special Secretary and
Director, Wildlife Preservation

Note:— The principal notification was published in the Gazette of India, Extraordinary, *vide* number S.O. 1093(E), dated the 22nd September, 2003 and subsequently amended *vide* S.O. 1249(E), dated the 8th November 2004; S.O. 1324(E), dated the 1st December, 2004; S.O. 802(E), dated the 16th May, 2007 and S.O. 483(E), dated 25th February, 2010.

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and Published by the Controller of Publications, Delhi-110054.

F. No. 6-46/2013-WL (pt-2)
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
NATIONAL BOARD FOR WILDLIFE

INDIRA PARYAVARAN BHAWAN
JORBAGH ROAD,
NEW DELHI -110003

DATED: 22 July, 2014

NOTIFICATION

Standing Committee of National Board for Wildlife was constituted vide notification No. 6-1/2006 WL-I (pt) dated 14th September 2010, in exercise of powers conferred by sub section (1) of section 5B of the Wildlife (Protection) Act 1972. In view of the reconstitution of the National Board for Wildlife, the following members of the Board are hereby nominated to the Standing Committee of NBWL with immediate effect.

	Minister in charge of Environment and Forests	Chair
	Wildlife Preservation Officer (Additional DGF (WL), MoEF&CC)	Member Secretary
	Members nominated by Vice Chair, NBWL	
1	Secretary, MoEF&CC	Member
2	DGF & Spl Secretary, MoEF&CC	Member
3	Director, Wildlife Institute of India, Dehradun	Member
4	Nominee of GEER Foundation, Gandhinagar	Member
5	Prof. R. Sukumar, IISc, Bangalore	Member
6	Dr. H.S. Singh, Gandhinagar	Member
7	Representative of the state of Andhra Pradesh	Member

Member Secretary, National Tiger Conservation Authority will be a special invitee to the Standing Committee.

The business of the Committee shall be performed in accordance with the provisions of the notification dated 14th September 2010 mentioned above.

SSGarbyal
(Dr. S.S. Garbyal)
DGF&SS and Director Wildlife Preservation

Annexure 43

ITEM NO.304 COURT NO.7 SECTION PIL

SUPREME COURT OF INDIA
RECORD OF PROCEEDINGS

Writ Petition(s)(Civil) No(s). 736/2014

CHANDRA BHAL SINGH Petitioner(s)

VERSUS

UNION OF INDIA AND ANR Respondent(s)

(With appln. (s) for ex-parte stay)

Date : 25/08/2014 This petition was called on for hearing today.

CORAM :

HON'BLE MR. JUSTICE JAGDISH SINGH KHEHAR
HON'BLE MR. JUSTICE J. CHELAMESWAR
HON'BLE MR. JUSTICE A.K. SIKRI

For Petitioner(s) Mr.Sanjay Upadhyay, Adv.
Mr.Salik Shafique, Adv.
Mrs. Lalita Kaushik ,Adv.

For Respondent(s) Ms.S.K.Bajwa, Adv.
Mr.S.N.Terdal, Adv.
Syed Tanweer Ahmad, Adv.

Upon hearing the counsel the Court made the following

ORDER

The National Board for Wild Life is to be constituted under Section 5A of the Wild Life (Protection) Act, 1972. Through the instant writ petition, the petitioner has impugned a Notification dated 22.07.2014 (Annexure P-4) whereby nominations have been made to the National Board for Wild Life. Having perused the above Notification, we are tentatively of the view that the same has not been issued in consonance with Section 5A of the Wild Life (Protection) Act, 1972.

Signature invalid
Digitally signed by
Satish
Date:
15:1 IST
Reason:

Issue notice.

On our asking, Ms.S.K.Bajwa, advcocate, accepts notice on behalf of Union of India.

Learned counsel for the Union of India seeks two weeks' time to enable her to obtain instructions in the matter. List after two weeks.

The Standing Committee of the National Board for Wild Life may continue to function, but shall not give effect to any order passed by it, till the next date of hearing.

(SATISH KUMAR YADAV)
COURT MASTER

(PHOOLAN WATI ARORA)
ASSISTANT REGISTRAR

Annexure 44

"(iii) श्री वी बी सावरकर
(iv) श्री एस एस बिष्ट
(v) डा. पी एस ईसा
(vi) श्री पी आर सिन्हा
(vii) डा. आर जे राव
(viii) डा. मदन मोहन पंत
(ix) श्री राजेन्द्र पी केरकर
(x) श्री लव कुमार खाचर ।";

(ग) खंड (फ) में क्रम संख्या (v) और उससे संबंधित प्रविष्टियों के पश्चात् निम्नलिखित क्रम संख्या और प्रविष्टियां अंत:स्थापित की जाएंगी, अर्थात् :—

"(vi) पंजाब
(vii) केरल
(viii) गुजरात
(ix) त्रिपुरा
(x) पश्चिम बंगाल ।"

[फा. सं. 6-46/2013-डब्ल्यू एल]

डा. एस. एस. गर्बयाल, वन महानिदेशक और विशेष सचिव तथा निदेशक, वन्य जीव परिरक्षण

टिप्पण: मूल अधिसूचना भारत के राजपत्र, असाधारण में का.आ. 1093(अ), तारीख 22 सितंबर, 2003 को प्रकाशित की गई थी और पश्चात्वर्ती संशोधन का.आ. संख्या 1249(अ), तारीख 8 नवंबर, 2004; का.आ. 1324(अ), तारीख 1 दिसंबर, 2004; का.आ. 802(अ), तारीख 16 मई, 2007; का.आ. 483(अ), तारीख 25 फरवरी, 2010 और का.आ. 1886(अ), तारीख 22 जुलाई, 2014 द्वारा किए गए ।

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 11th September, 2014

S.O. 2304(E).—In exercise of the powers conferred by sub-section (1) of Section 5A of the Wild Life (Protection) Act, 1972 (53 of 1972) read with sub-rule (4) of rule 3 of the National Board for Wild Life Rules, 2003, the Central Government hereby nominates the following as members to the National Board for Wild Life and makes the following further amendments in the notification of the Government of India in the Ministry of Environment and Forests, number S.O. 1093(E), dated 22nd September, 2003, namely:—

In the said notification,—

(a) in clause (e), after serial number (i) and the entries relating thereto, the following serial numbers and entries shall be inserted, namely:-

"(ii) World Wildlife Fund for Nature-India, New Delhi,
(iii) Aranyak, Guwahati, Assam,
(iv) Nature Conservation Society, Jharkhand,
(v) Bombay Natural History Society, Mumbai, Maharashtra.";

(b) in clause (f), after serial number (ii) and the entries relating thereto, the following serial numbers and entries shall be inserted, namely:-

"(iii) Shri V.B. Sawarkar,
(iv) Shri S.S. Bisht,
(v) Dr. P.S. Easa,
(vi) Shri. P.R. Sinha,
(vii) Dr. R. J. Rao,
(viii) Dr. Madan Mohan Pant,
(ix) Shri Rajendra P. Kerkar,
(x) Shri Lav Kumar Khachar.";

(c) in clause (v), after serial number (v) and the entries relating thereto, the following serial numbers and entries shall be inserted, namely:—

"(vi) Punjab,
(vii) Kerala,
(viii) Gujarat,
(ix) Tripura,
(x) West Bengal."

[F. No. 6-46/2013-WL]

Dr. S. S. GARBYAL, Director General of Forests and Special Secretary and Director, Wildlife Preservation

Note: The principal notification was published in the Gazette of India, Extraordinary, *vide* number S.O. 1093 (E), dated the 22nd September, 2003 and subsequently amended *vide* S.O. 1249 (E), dated the 8th November, 2004; S.O. 1324 (E), dated the 1st December, 2004; S.O. 802 (E), dated the 16th May, 2007, S.O. 483 (E), dated 25th February, 2010 and S.O.1886(E), dated 22nd July 2014.

Printed by the Manager, Government of India Press, Ring Road, Mayapuri, New Delhi-110064
and Published by the Controller of Publications, Delhi-110054.

Annexure 45

ELAW

Evaluation of the Report on the:

Biodiversity and Environmental Assessment of proposed doubling of railway track
between Kulem and Castlerock in Goa-Karnataka
August 2017

AND

Evaluation of the Environmental Impact Assessment for:

The Four Laning of existing Goa/Karnataka border – Panaji Goa section of NH4A
from km 84/000 to 153/075 (Anmod to Panaji) under NHDP-III
July 2018

Projects to travel through the Anshi-Dandeli Tiger Reserve (ADTR, Karnataka), Bhagwan Mahavir Wildlife Sanctuary (BMWLS, Goa) (also known as the Sri Bhagwan Mahaveer Jain WLS), and Mollem National Park

for
The Goa Foundation

by
Dr. Heidi W. Weiskel
Environmental Law Alliance Worldwide

2 June 2020

Two major infrastructure projects—a railway and a highway—have been proposed through three protected areas: the Anshi-Dandeli Tiger Reserve (ADTR) in Karnataka, the Bhagwan Mahavir Wildlife Sanctuary (BMWLS) in Goa, and Mollem National Park. There are grave concerns about the potential impact of these projects on wildlife and overall biodiversity in the Reserve, Sanctuary and Park. This review will examine the efforts to address the impacts to wildlife and biodiversity in the *Biodiversity and Environmental Assessment of proposed doubling of railway track between Kulem and Castlerock in Goa-Karnataka (Biodiversity Assessment)* and the *Environmental Impact Assessment for the Four Laning of existing Goa/Karnataka border – Panaji Goa section of NH4A from km 84/000 to 153/075 (Anmod to Panaji) under NHDP-III (Highway EIA)*, which have been submitted in support of the projects.

This review will address the questions:

1) Does either of these construction activities directly benefit wildlife in the sanctuary?

2) Do these documents adequately address the impacts to wildlife and biodiversity?

Impact evaluation of Railway

According to the Biodiversity Assessment, the justification for the railway is as follows:

> "• The existing single line capacity is fully saturated. Goa and Hospet in Karnataka being important tourist destinations, there is a huge demand for introduction of new trains. Also Goa being a tourist destination, there is a demand for introducing more and more passenger trains from various parts of the country. Due to the existing single line capacity constraints, it had not been possible to introduce new trains.
>
> •Track doubling would enhance the line capacity and Indian Railways will thus be able to introduce more passenger trains in this section. With the introduction of more trains, it will bring in more and more tourists and thus helps in increasing the employment, business potential and socio-economic development of Goa. Railway doubling, apart from tourism also helps in movement of bulk commodities by rail which is the most energy efficient mode of transport, thereby saving precious foreign exchange due to reduced fuel consumption."[1]

Or more succinctly put, "This proposed doubling work [i]s aimed to assuage the traffic on the existing route and increase number of passenger and freight trains to facilitate efficient transport of coal and iron Ore."[2]

---

[1] Sukumar, R. and T. G. Sitharam. 2017. Biodiversity and Environmental Assessment of proposed doubling of railway track between Kulem and Castlerock in Goa-Karnataka (Biodiversity Assessment). Final report submitted to Rail Vikas Nigam Limited, Ministry of Railways, Government of India. 219 pp., p. 30.

[2] Biodiversity Assessment, p. 175.

The issues, then, include not only the area impacted by the tracks, but the number and frequency of the trains themselves, as well as the cargo the trains are carrying. In considering the impacts of this project on wildlife, therefore, proponents must study the rates of existing accidents and use the opportunity of a new set of railway tracks to correct for past errors. They must also conduct the studies necessary to inform models about noise and contamination from the increased rail traffic. Finally, they must honestly articulate the risks posed by the cargo to be hauled through the protected areas. A train full of tourists is not equivalent to a train filled with coal or iron ore. Below these comments are examined in greater detail.

1) **The proponents must understand the varying impacts of railway traffic on the myriad of species found in these protected areas.**

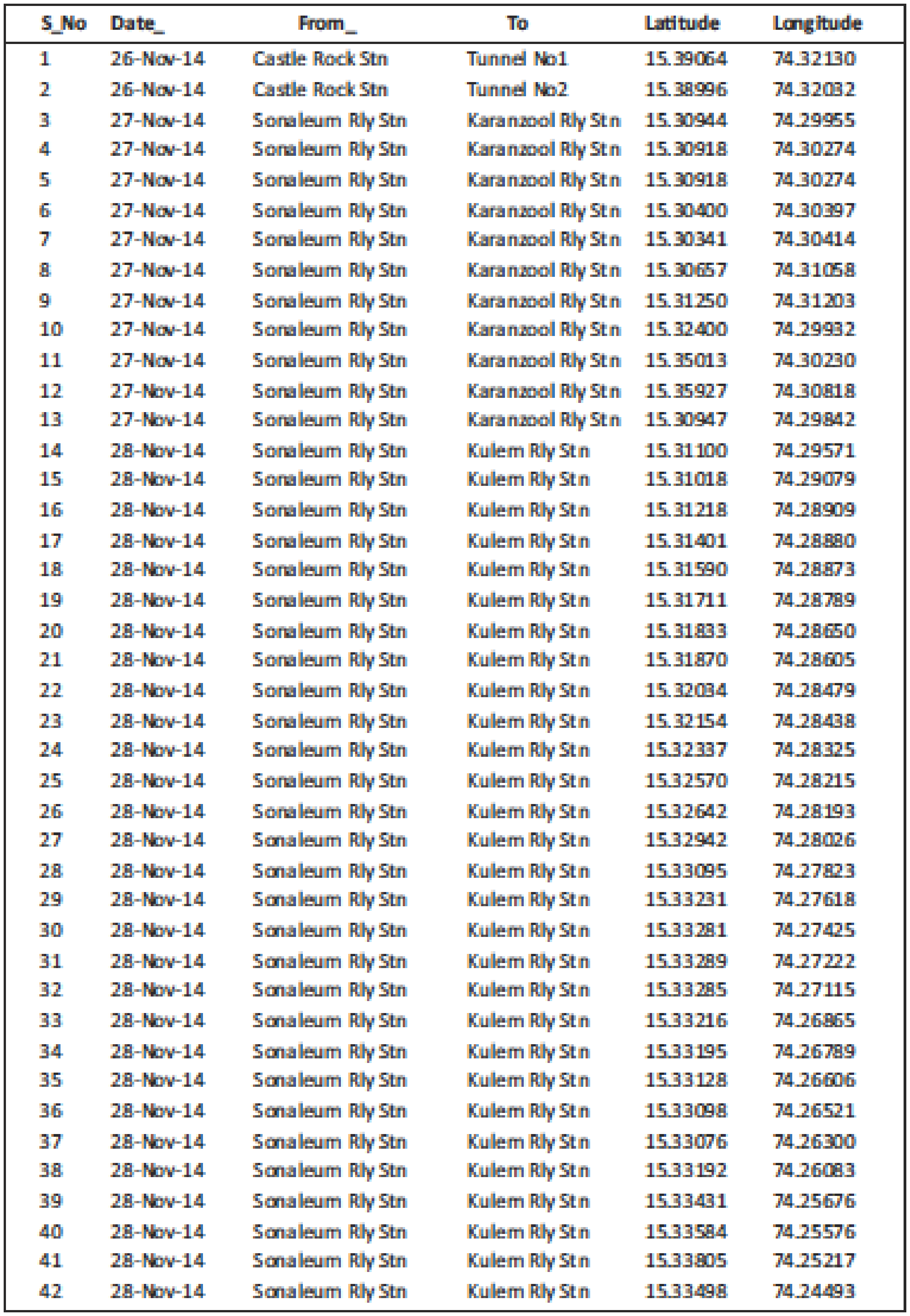
The public consultation meetings revealed that accidents happen with wildlife on the existing tracks. For example, the Biodiversity Assessment reports:

> "After the introduction and detailing of project, the floor was open for discussion. One of the members of the public, Mr. Tushani Mamblekar (wildlife enthusiast) raised the concern about the number of gaur (Bos gaurus) killed by railway traffic especially between Karanzole and Kulem. Mr. Raju, Site Engineer, answered his concern and explained the measures such as providing underpass, erecting barricades and providing sign boards for loco-pilots taken by the Railways as per the suggestions given by the Range Forest Officer, Conservator of Forests and Chief Conservator of Forests of Belgaum Circle.
>
> Dr. Suresh explained the efforts to mark the animal crossing points along the existing railway tract and also animal accident locations as gathered by railway staff in different stations between Castle Rock and Kulem with the help of a GPS. This would be a part of the advisory to the Railways who would take precautions for smoother passage for animals crossing the track."[3]

The animal crossing location table is an important first start:

---

[3] Biodiversity Assessment, p. 191.



S_No	Date_	From_	To	Latitude	Longitude
1	26-Nov-14	Castle Rock Stn	Tunnel No1	15.39064	74.32130
2	26-Nov-14	Castle Rock Stn	Tunnel No2	15.38996	74.32032
3	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30944	74.29955
4	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30918	74.30274
5	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30918	74.30274
6	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30400	74.30397
7	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30341	74.30414
8	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30657	74.31058
9	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.31250	74.31203
10	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.32400	74.29932
11	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.35013	74.30230
12	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.35927	74.30818
13	27-Nov-14	Sonaleum Rly Stn	Karanzool Rly Stn	15.30947	74.29842
14	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31100	74.29571
15	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31018	74.29079
16	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31218	74.28909
17	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31401	74.28880
18	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31590	74.28873
19	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31711	74.28789
20	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31833	74.28650
21	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.31870	74.28605
22	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32034	74.28479
23	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32154	74.28438
24	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32337	74.28325
25	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32570	74.28215
26	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32642	74.28193
27	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.32942	74.28026
28	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33095	74.27823
29	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33231	74.27618
30	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33281	74.27425
31	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33289	74.27222
32	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33285	74.27115
33	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33216	74.26865
34	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33195	74.26789
35	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33128	74.26606
36	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33098	74.26521
37	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33076	74.26300
38	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33192	74.26083
39	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33431	74.25676
40	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33584	74.25576
41	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33805	74.25217
42	28-Nov-14	Sonaleum Rly Stn	Kulem Rly Stn	15.33498	74.24493

Table 2.8.4: Geo-cordinates of animal crossing location along the existing railway track in the proposed project area [4]

However, it is not clear that true accident records have actually been kept or could be gathered reliably at this time, despite Dr. Suresh's attempted reassurance:

---

[4] Biodiversity Assessment, p. 164.

> *"2.3 Proving passages for animals and reducing collision risks*
>
> One of the problems with increased train traffic in a track running through a forested area with wildlife is the increased risk of collisions with animals. There have been instances of a large mammal such as the Indian gaur, being involved in such accidents as well as a host of other animals though there are no systematic records available.
>
> 2.3.1 Railways should provide whistle boards in forested areas where animals cross the railway track. The crossing points are provided in the report
>
> 2.3.2 Railways should construct under passes for the movement of animals upon the advice of forest department. They should also maintain existing culverts, underpasses and other drainage structures along the railway line or improve upon the existing structures if required. Such culverts and smaller drainage structures can facilitate the movement of a variety of smaller animals including anurans, reptiles, and small mammals.
>
> 2.3.3 Upon the advice of the forest department, railways should construct barricades in designated localities to prevent the animals crossing tracks at locations where such crossings are risky for the animals."[5]

This description sounds as though mitigation efforts are geared to rely on existing infrastructure (primarily passageways under the railway), which is not sufficient given the significant potential impact that doubling train numbers could have inside the protected areas. An additional investigation needs to be done for each species that has experienced fatalities and that will need to cross the tracks. Some species will not travel through tunnels, as evolutionarily it is too dangerous for them to be trapped in a narrow, underground space. Similarly, some species will not cross an overpass, for fear of being preyed upon while being in the open. Finally, care needs to be given to ensure that species are not forced together unnaturally, and that actual predation does not occur while being forced to cross over or under the railway. This biological knowledge must be incorporated into the design of various passageways, as recommended by the 2017 Springer book on Railway Ecology and cited by the Biodiversity Assessment.[6]

In addition, there must be a sufficient number of these crossing features along the railway to accommodate the entire population of affected species. However, the report in its "Recommendations and Mitigation Measures" section mentions just two areas to cross (over- or underpass not specified), with waterway bridges added as a potential (unverified) alternate crossing location:

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[5] Biodiversity Assessment, p. 207.

[6] Carvalho, F., S. M. Santos, A. Mira and R. Lourenço. 2017. Chapter 3: Methods to Monitor and Mitigate Wildlife Mortality in Railways. In Borda-de-Água, L., R. Barrientos, P. Beja, and H. M. Pereira, editors. Railway Ecology. Springer Open Access. 320 pp. pp. 32-33. https://link.springer.com/book/10.1007/978-3-319-57496-7

> “**During construction phase**
>
> The length of new railway line is 25 km. which is parallel to the existing railway line. The advantage of parallel railway line is that no new corridor is opened in the forest and habitat is not further bifurcated. Further, total length of tunnel is 3.497 km. For tunneling no trees are to be cut, and the forest cover is maintained intact. This ensures continuity of the forest for wild animals to cross the railway tracks. However, if required in consultation with the forest department, flyovers at animal crossings may be provided. DCF/Goa vide letter No, 1-609/WL&ET (N)/ 18-220 dt. 08.05.2017 has suggested for wild animal crossings at the following locations suitable underpasses/over bridge may be provided:
>
> 1. Chainage No. 45/500. GPS. 15º19'30.6” N and 74 º 16'56.3” E
>
> 2. Chainage No 49/500 GPS 15 º 20'16.9” N and 74 º 15'07.4” E
>
> The waterway bridges provided can also act as underpasses for animal crossings.”[7]

More investigation must be done into the types of crossing features and the number needed to accommodate the myriad of species passing through. For example, in simple probabilistic terms it is reasonable to assume that an increase in the number of trains will require an increased potential for interaction with an animal trying to cross the railway. It is thus reasonable to assume that more sites need to be dedicated to crossing than have been designated to date. Precisely how many more can be determined by running biological scenarios to accurately estimate these interactions on a species by species basis. Proponents should prepare for this increased cost in their budget for the project: both the fieldwork and the crossing feature construction will take significant time.

2) The proponents must conduct scenarios to understand how the initial railway impacts will change with an additional railway added in each direction.

The additional lines will degrade habitat that is currently used by many species, including the Great Indian Hornbill, listed in the Wildlife Protection Act of 1972,[8] and other bird species. It will also result in the direct loss of 1.17 Ha of forest.

Further, in the section on “Impact and Remedial measures specific to this project” the Biodiversity Assessment reports the following problems and solutions:

> “3. Air and noise pollution – With the existing diesel engines, railway line doubling would increase the amount of pollutants. Water pollution is a major concern during the

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[7] Biodiversity Assessment, p. 203.

[8] Biodiversity Assessment, p. 146.

> construction as well as during operation phase. Faecal matter and associated bacteria (E. coli) from the trains are going to contaminate water bodies, which has serious health impacts in the downstream. But now coaches are being provided with bio-toilets, therefore contamination would be less. Solid waste generation and management – Unless strict and stringent measures to curb solid waste dumping, railway line doubling adds more trouble to existing management issues with solid waste. Electrification of the double line can completely reduce the air and noise pollution. However solid waste will be a problem which can be mitigated with proper collection, segregation and treatment."[9]

Electrification and bio-toilets will indeed help lessen some of the negative impacts of the trains, and should be a requirement for authorization of the project. But beyond these obvious impacts, the trains will pollute the nearby habitats just by virtue of running on the tracks, and their mine-related cargo (coal or iron ore) poses further dangers to surrounding ecosystems from fugitive dust, to the potential for fires, to crashes and spills.[10] According to a recent review of railway impacts cited in the Biodiversity Assessment:

> "***Soil Pollution***
>
> With the increase in the human population and vehicles, emissions arising from transportation have become one of the most important sources of heavy metal, PAHs and herbicides in the soil (Malawaka and Wilkomirski 2001; Böjersson et al. 2004). Fuel combustion, vehicular and track material abrasion, and leaked cargo emit particles containing metals that are deposited in the soils, where they can remain for many years due to their low biodegradability (Zhang et al. 2012).
>
> As most products of vehicle emissions are neither biologically nor chemically degraded, they can affect the growth of plants and ecosystems (Chen et al. 2014a, b). In fact, plants and soil organisms are the first recipients of the emission pollutants (Malawaka and Wilkomirski 2001). Ongoing research indicates that plant uptake varies among species. For example, leucaena (Leucaena leucocephala), annual meadow grass (Poa annua), and indigofera (Indigofera amblyantha) are known to have high translocation capacity for some metals, such as lead (Pb) and cadmium (Cd), but limited translocation of heavy metals from the roots to the aboveground tissues (Chen et al. 2014a, b), while others show the opposite trend (Ge et al. 2003).
>
> High concentration levels of heavy metals are often found in the vicinity of railways. Wiłkomirski et al. (2011) reported the same concentration of molybdenum (Mo) close to and approximately 2 km from the railways in Poland. For instance, the concentration of nickel, cadmium, cobalt, and lead in the moss (Pleurozium schreberi) was the same 30 m

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[9] Biodiversity Assessment, p. 31.

[10] Ghose, M. K. 2007. Generation and Quantification of Hazardous Dusts from Coal Mining in the Indian Context. Environmental Monitoring Assessment 130: 35-45. DOI 10.1007/s10661-006-9451-y.

> from the railway as it was at points near the railways (Mazur et al. 2013). In addition, high concentrations of PAHs were found in the aerial parts of plant species near the railway and up to distances of 30 m from the railway (Malawaka and Wilkomirski 2001; Wiłkomirski et al. 2011). On railways, in particular, the biodegradation of PAHs and herbicides is extremely low and can persist over decades (Wilkomirski et al. 2012).
>
> ***Water Pollution***
>
> Infrastructures associated with railways (e.g., leakages of petroleum products from fuel storage tanks) contribute, together with pollutants, to aquatic ecosystems (Schweinsberg et al. 1999; Vo et al. 2015). Levengood et al. (2015) documented high concentrations of PAHs and heavy metals in waterways bisected or bordered by railways. They showed that the PAH concentration was higher downstream than upstream of the railway (Levengood et al. 2015). They also found that phenanthrene and dibenzo (a, h) anthracene (a PAH element) concentrations at some sites represented a risk to aquatic life, whereas the chromium (Cr) values were still below the levels of concern for aquatic life (Levengood et al. 2015).
>
> Herbicides and pesticides are other sources of water pollution. For herbicides, Schweinsberg et al. (1999) discovered that in Germany before the 1990s, a much higher total amount of these compounds were applied on railway tracks than in agriculture. Recently, Vo et al. (2015) showed that many herbicides applied during the operation of the railway are at concentrations that are lethal to most of the aquatic fauna, particularly fish populations; they indicate that compounds such as Imazapyr or Diuron concentrations can take 6 and 48 months, respectively, to drop below 50% of their original levels."[11]

The mitigations of electrification and bio-toilets will not be enough to address these issues of pollution and risk. More should be done to assess potential damage to wildlife and develop effective mitigation measures.

In summary, to address the questions posed at the top of the evaluation:

1) The trains do not directly benefit wildlife in the Reserve, Sanctuary, or Park, and in fact, they will inevitably cause harm, as a result of increased collision risk, increased pollution, and increased risk from specific cargo. If the trains are not switched to electric they will also cause a substantial increase in noise and air emissions. Insisting that the trains run on electric power and have bio-toilets and a solid waste management regime in place may help to lessen some of the tremendous impacts to wildlife. However, there

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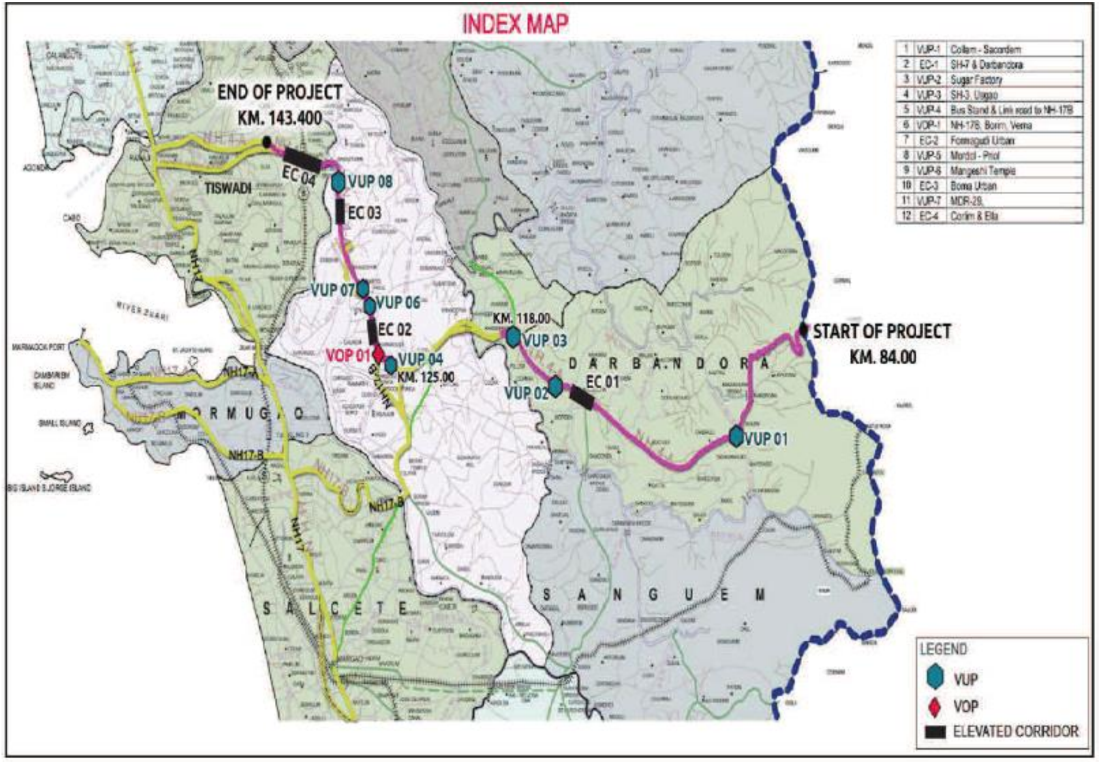
[11] Lucas, P. S., R. Gomes de Carvalho and C. Grilo. 2017. Chapter 6: Railway Disturbances on Wildlife: Types, Effects, and Mitigation Measures. In Borda-de-Água, L., R. Barrientos, P. Beja, and H. M. Pereira, editors. Railway Ecology. Springer Open Access. 320 pp. pp. 83-84.
https://link.springer.com/book/10.1007/978-3-319-57496-7

is no way the trains could be neutral, let alone beneficial, to the wildlife found in these protected areas. On the contrary, they, are intended to "[…] bring in more and more tourists and thus helps in increasing the employment, business potential and socio-economic development of Goa."[12] The animals of the protected areas are not included in this vision.

2) While the document does identify many of the potentially affected species and does highlight some of the potential impacts, it is not a comprehensive assessment of each aspect of the train's construction and operation. To fully appreciate the impacts the additional railway will have, the document should have separated out the direct loss and alteration of habitat, the direct impacts on multiple animal species, and the indirect impacts that arise as a result of increased traffic and various types of cargo traveling through the protected areas.

Impact evaluation of Highway


INDEX MAP
1 VUP-1 Collam - Sacordem
2 EC-1 SH-7 & Darbandora
3 VUP-2 Sugar Factory
4 VUP-3 SH-3, Usgao
5 VUP-4 Bus Stand & Link road to NH-17B
6 VOP-1 NH-17B, Borim, Verna
7 EC-2 Farmagudi Urban
8 VUP-5 Mardol - Priol
9 VUP-6 Mangeshi Temple
10 EC-3 Borna Urban
11 VUP-7 MDR-28,
12 EC-4 Corlim & Ella
END OF PROJECT
KM. 143.400
EC 04
VUP 08
EC 03
TISWADI
VUP 07
VUP 06
EC 02
VOP 01
VUP 04
KM. 125.00
KM. 118.00
VUP 03
VUP 02
EC 01
D A R B A N D O R A
START OF PROJECT
KM. 84.00
VUP 01
M O R M U G A O
NH17-A
NH17-B
NH17
S A L C E T E
S A N G U E M
RIVER ZUARI
LEGEND
VUP
VOP
ELEVATED CORRIDOR
[13]

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[12] Biodiversity Assessment, p. 30.

[13] Highway EIA, p. 8.

The justification for the Highway project as articulated in the Highway EIA is that "it has a great potential of growth in the passenger as well as freight movement in future due to agriculture and industrial growth in the project influence area."[14]

This statement would not meet the criterion of directly benefiting wildlife in the protected area. In fact, any development project that is likely to increase industrial development in the region could be considered actively detrimental to wildlife.

The Highway EIA goes on to say further:

> "The prosed upgradation of existing road into 4 lanes with MoRTH guidelines from Anmod-Panaji stretch can harmonize with the surrounding environment with the following direct and indirect benefits.
>
> 1. The increased road capacity and improved pavements can reduce the travel time & traffic jams. Resulting, conservation of fuel and reduction of pollution load. Based on the vehicle population for year 2033, the saving of the fuel consumption per year estimated to be 46604.4 KL, which may have a direct savings of Rs. 272.9 Crores per year.
> 2. Due to road widening the noise levels can be reduced to 4-5 dB(A) & air pollutants will also be reduced considerably. Ultimately, this shows positive impact on human health.
> 3. There will be improvements of the economic growth in the surrounding places due to establishment of more industries, institutions, MNCs and other organizations."[15]

These explanations suffer from shaky logic. Suggesting that the road doubling will reduce noise levels and air pollution does not make sense, since the road is being doubled to facilitate more traffic, which will elevate noise and air pollution. It cannot possibly be a "positive impact on human health." Nor can it be a positive impact on wildlife in the sanctuary, since animals are likewise negatively affected by noise and air pollution.

One of the concerning signs that the EIA has not adequately addressed the impacts of the project on wildlife is the fact that the engineering plans for the highway do not appear to have incorporated wildlife survey data from the field.

The table of engineering works for the project reads as follows:

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[14] AARVEE Associates. 2018. Environmental Impact Assessment for The Four Laning of existing Goa/Karnataka border – Panaji Goa section of NH4A from km 84/000 to 153/075 (Anmod to Panaji) under NHDP-III (Highway EIA). 159 pp. p. 7.

[15] Highway EIA, p. 155.

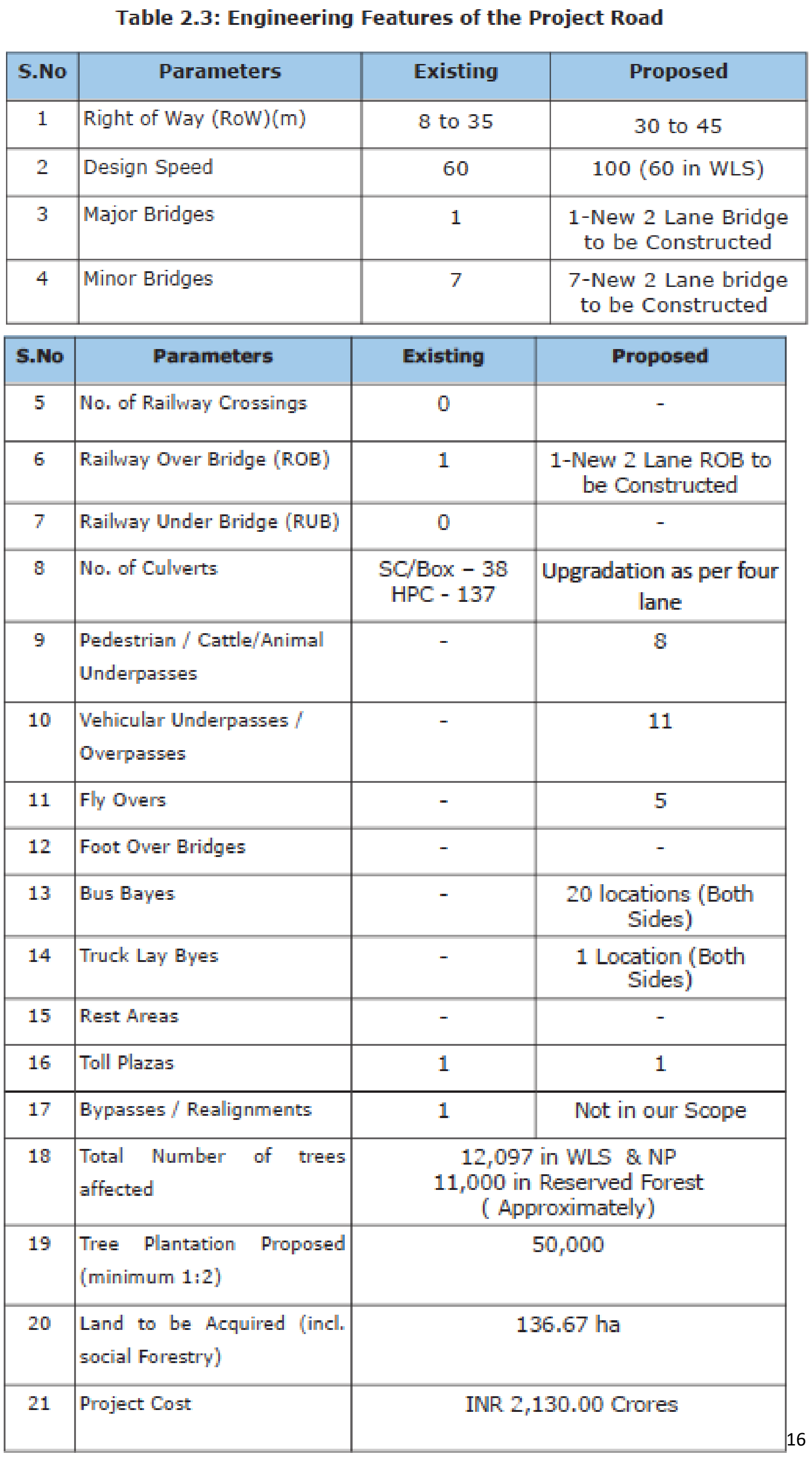

Table 2.3: Engineering Features of the Project Road

S.No	Parameters	Existing	Proposed
1	Right of Way (RoW)(m)	8 to 35	30 to 45
2	Design Speed	60	100 (60 in WLS)
3	Major Bridges	1	1-New 2 Lane Bridge to be Constructed
4	Minor Bridges	7	7-New 2 Lane bridge to be Constructed
5	No. of Railway Crossings	0	-
6	Railway Over Bridge (ROB)	1	1-New 2 Lane ROB to be Constructed
7	Railway Under Bridge (RUB)	0	-
8	No. of Culverts	SC/Box – 38 HPC - 137	Upgradation as per four lane
9	Pedestrian / Cattle/Animal Underpasses	-	8
10	Vehicular Underpasses / Overpasses	-	11
11	Fly Overs	-	5
12	Foot Over Bridges	-	-
13	Bus Bayes	-	20 locations (Both Sides)
14	Truck Lay Byes	-	1 Location (Both Sides)
15	Rest Areas	-	-
16	Toll Plazas	1	1
17	Bypasses / Realignments	1	Not in our Scope
18	Total Number of trees affected	12,097 in WLS & NP 11,000 in Reserved Forest (Approximately)	
19	Tree Plantation Proposed (minimum 1:2)	50,000	
20	Land to be Acquired (incl. social Forestry)	136.67 ha	
21	Project Cost	INR 2,130.00 Crores	

[16]

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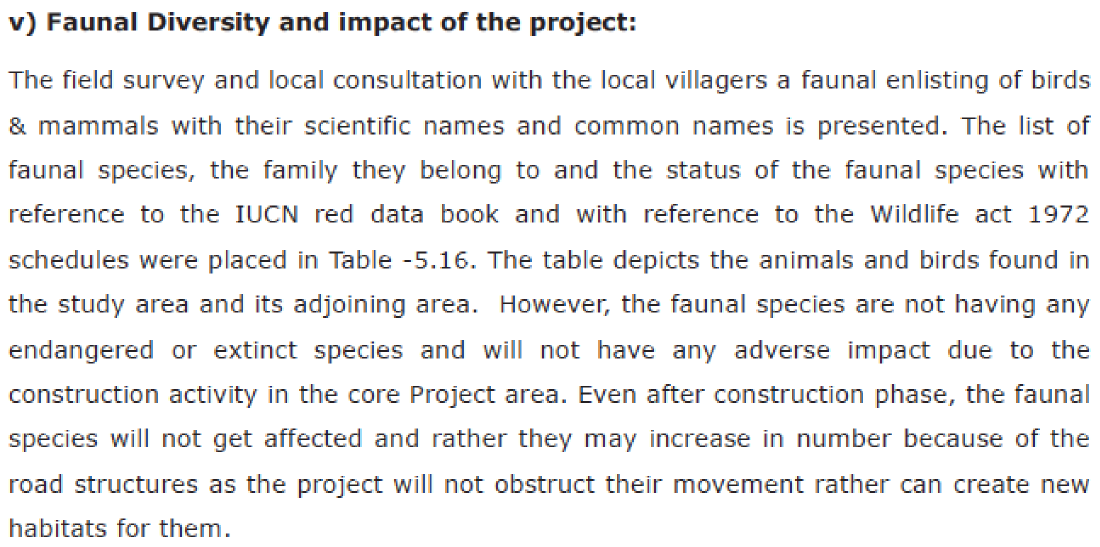
[16] Highway EIA, pp. 9-10.

The engineering works do not include a single overpass for wildlife. Further, this description suggests that the underpasses are meant to serve cattle, wildlife, and humans. Very few species of wildlife that need to cross the highway would be willing to cross through an underpass also used by humans or cattle. And many species will not use an underpass at all, given their instincts to remain safe from predation. In short, this list makes it clear that sufficient assessment of the biological requirements for effective mitigation of this project on the wildlife in the protected areas has not been carried out.

Further, the Highway EIA lumps the diversity and impact of the project into a single, remarkably flawed paragraph:



> **v) Faunal Diversity and impact of the project:**
>
> The field survey and local consultation with the local villagers a faunal enlisting of birds & mammals with their scientific names and common names is presented. The list of faunal species, the family they belong to and the status of the faunal species with reference to the IUCN red data book and with reference to the Wildlife act 1972 schedules were placed in Table -5.16. The table depicts the animals and birds found in the study area and its adjoining area. However, the faunal species are not having any endangered or extinct species and will not have any adverse impact due to the construction activity in the core Project area. Even after construction phase, the faunal species will not get affected and rather they may increase in number because of the road structures as the project will not obstruct their movement rather can create new habitats for them.

[17]

It is beyond belief that this paragraph represents the entire discussion of the impacts of a major widening of an already major highway on wildlife inside multiple protected areas. It should go without saying that the project could have negative impacts on species even if they are not endangered. It further tests the bounds of reason that the proponents might actually suggest that wildlife species will thrive because new habitats will be created for them. What habitats are the proponents referring to? If roads create new habitats for wildlife, why has this fact never been documented in the scientific or management literature? Why are such examples not included here?

Unfortunately, the proponents are not acknowledging the substantial negative impacts of this project—from collisions to noise and air pollution from vehicles to aquatic pollution from increased toxic runoff to altered behavior affecting feeding and reproduction in multiple species. Road impacts on wildlife species are well-documented[18][19] and substantial efforts have been made to develop guidelines for effectively documenting and lessening those impacts.[20] While there are no official international standards for which data must be gathered or impacts assessed for road construction, both the World Bank and many countries have developed schedules for what should be included in a highway EIA. Below, some of these examples are highlighted by way of comparison.

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[17] Highway EIA, p. 81.

The World Bank (International)

The World Bank developed a handbook on roads and the environment that is intended to serve as a set of basic standards for road planning. In its introduction, the handbook states the following guiding principle:

> "Our actions have consequences not only for our immediate environment, but for us as well; anything we do to degrade our environment will generally affect our well-being later on."[21]

One of the most important aspects of an EIA that the World Bank highlights is the need for a cumulative assessment of impacts, especially for a project that is adding onto an existing highway, as is the case under review here. Under Section 1.5.1., "The project-specific assessment (EA)," the handbook offers the following guidance:

> "The project-specific environmental assessment (EA) is the most common form of EA, and there is considerable experience with its execution.[7] Ideally, EAs should focus on identifying potential impacts on the local and immediate environment within the context of a region or sector. However, they are nearly always carried out in isolation, with little regard for what is happening beyond the project site and without considering existing future plans for the region. Clearly, there is room for improvement in this area. As part of the project scoping exercise, measures such as assessing the cumulative impact of multiple activities, and reviewing existing and planned developments in the region, are both desirable and necessary.
>
> Project-specific EA allows road agencies to
>
> - familiarize themselves with the environmental status of the proposed site and anticipate any environmental impacts that may arise from the road project;

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[18] Trombulak, S. C. and C.Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology 14: 19-29.

[19] U.S. Environmental Protection Agency (EPA). 1994. Evaluation of Ecological Impacts from Highway Development. EPA document # 300-B-94-006. 74pp.

[20] National Cooperative Highway Research Program. 2002. Interaction Between Roadways and Wildlife Ecology: A Synthesis of Highway Practice. Synthesis 305. Transportation Research Board of the National Academies of Science, USA. 79 pp.

[21] World Bank (World Bank). 1997. Roads and the Environment, A Handbook. World Bank Technical Paper No. 376. 12pp. p. 4.

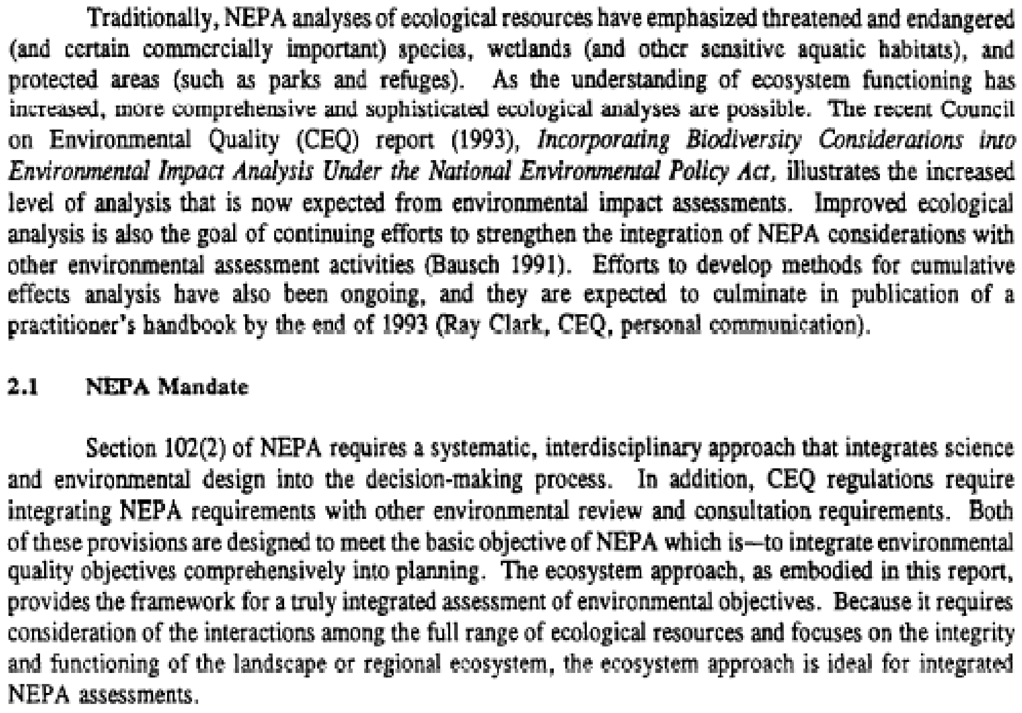
- highlight likely design problems, thus permitting the agency to make early changes and avoid costly delays at a later stage; and
- integrate the project into the existing environment.

> [7]while the experience base is extensive, practitioners continue to make the same mistakes; lessons learned are rarely recorded and “effects monitoring” is not undertaken. The International EIA Network is now being established. One of its objectives is to build a library of EIA case studies and make it available to all practitioners. Contacts are listed in the section entitled “Other sources of information” at the end of this handbook. ”[22]

The United States

The U.S. Environmental Protection Agency (EPA) has developed an “Evaluation of Ecological Impacts from Highway Development” that serves as the minimum standards for the United States.[23] In the U.S., project proponents must take an ecosystem-based approach to their analysis of potential impacts:

“2. The Need for Ecological Analysis in Highway Projects



Traditionally, NEPA analyses of ecological resources have emphasized threatened and endangered (and certain commercially important) species, wetlands (and other sensitive aquatic habitats), and protected areas (such as parks and refuges). As the understanding of ecosystem functioning has increased, more comprehensive and sophisticated ecological analyses are possible. The recent Council on Environmental Quality (CEQ) report (1993), *Incorporating Biodiversity Considerations into Environmental Impact Analysis Under the National Environmental Policy Act*, illustrates the increased level of analysis that is now expected from environmental impact assessments. Improved ecological analysis is also the goal of continuing efforts to strengthen the integration of NEPA considerations with other environmental assessment activities (Bausch 1991). Efforts to develop methods for cumulative effects analysis have also been ongoing, and they are expected to culminate in publication of a practitioner's handbook by the end of 1993 (Ray Clark, CEQ, personal communication).

2.1 NEPA Mandate

Section 102(2) of NEPA requires a systematic, interdisciplinary approach that integrates science and environmental design into the decision-making process. In addition, CEQ regulations require integrating NEPA requirements with other environmental review and consultation requirements. Both of these provisions are designed to meet the basic objective of NEPA which is—to integrate environmental quality objectives comprehensively into planning. The ecosystem approach, as embodied in this report, provides the framework for a truly integrated assessment of environmental objectives. Because it requires consideration of the interactions among the full range of ecological resources and focuses on the integrity and functioning of the landscape or regional ecosystem, the ecosystem approach is ideal for integrated NEPA assessments.

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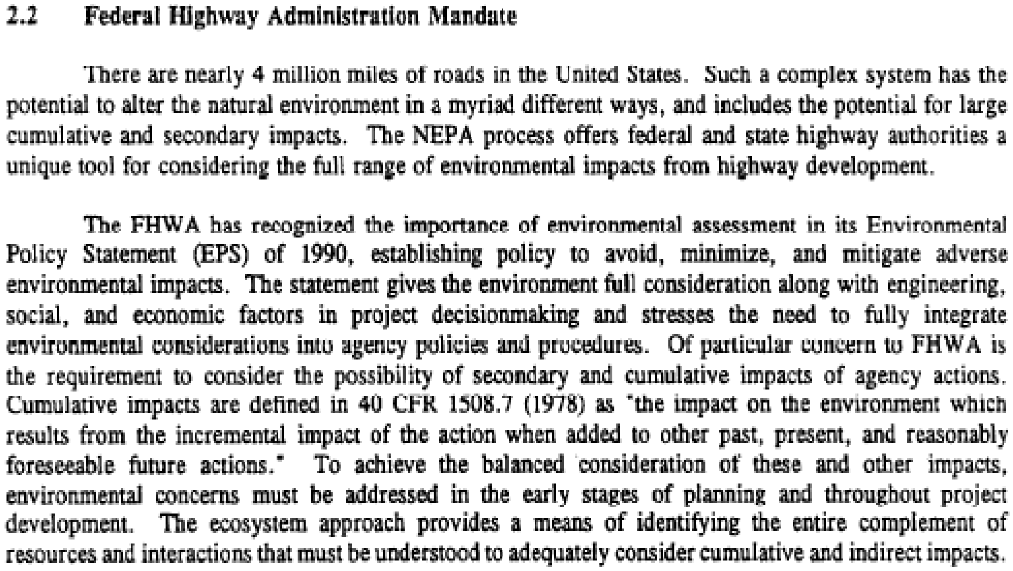
[22] World Bank, p. 8.

[23] EPA, 1994.



2.2 Federal Highway Administration Mandate

There are nearly 4 million miles of roads in the United States. Such a complex system has the potential to alter the natural environment in a myriad different ways, and includes the potential for large cumulative and secondary impacts. The NEPA process offers federal and state highway authorities a unique tool for considering the full range of environmental impacts from highway development.

The FHWA has recognized the importance of environmental assessment in its Environmental Policy Statement (EPS) of 1990, establishing policy to avoid, minimize, and mitigate adverse environmental impacts. The statement gives the environment full consideration along with engineering, social, and economic factors in project decisionmaking and stresses the need to fully integrate environmental considerations into agency policies and procedures. Of particular concern to FHWA is the requirement to consider the possibility of secondary and cumulative impacts of agency actions. Cumulative impacts are defined in 40 CFR 1508.7 (1978) as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." To achieve the balanced consideration of these and other impacts, environmental concerns must be addressed in the early stages of planning and throughout project development. The ecosystem approach provides a means of identifying the entire complement of resources and interactions that must be understood to adequately consider cumulative and indirect impacts.

> This is especially important when the affected environment is largely undisturbed, while in human-altered systems a targeted resource approach may be equally valid."[24]

This approach means that both direct and indirect effects of highways must be considered:

> "In addition to direct effects, CEQ guidance requires that indirect effects be considered:
>
> 'EIS must identify all the indirect effects that are known, and make a good faith effort to explain the effects that are not known but are "reasonably foreseeable." (NEPA Section 1508.8(b)). The agency has the responsibility to make an informed judgment, and to estimate future impacts on that basis, especially if trends are ascertainable.'"[25]

The document goes on to suggest that the following aspects must be carefully considered:

- "Geological Resources
- Noise
- Air Quality
- Water Quality
- Aquatic Environments
- Terrestrial Environments
- Endangered Species
- Wetlands
- Designated Natural Areas.

> The consideration of aquatic and terrestrial environments has principally focused on economically or recreationally important species of fish and wildlife. In some cases, these environments have been subdivided into land use or vegetation based classes. Rarely,

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[24] U.S. EPA pp. 3-4.

[25] U.S. EPA p. 26.

> however, have the variety of natural habitats in project areas been accorded the attention given to wetlands or designated natural areas (e.g., parks wild and scenic rivers, and recreation areas). By definition, an ecosystem approach to the evaluation of ecological impacts from highway development will consider all habitats in terms of their ecological importance, and therefore not exclude important environments that do no have official designations. Similarly, this approach requires consideration of the full range of species of ecological importance, not only listed endangered and threatened species."[26]

These standards are both systematic and detailed.

In addition to the national standards, many states within the U.S. have guidelines for project development. The state of New Mexico has well-articulated guidelines for conducting a wildlife inventory that take into account habitat use and assumptions about observations representing a percentage of total species likely to be on found within the project's footprint. One detail they emphasize in particular is the time required to conduct the biological baseline. Surveys must be conducted over months and even a year, not merely a couple of days. Note that the Highway EIA under review in this evaluation states that the field surveys were conducted between January and April 2016:[27]

> "**C.** **Description of Vertebrate Fauna; Wildlife Inventory**
>
> **Potential Species List.** This includes all known species that occur in the area according to literature sources and reliable sightings by local residents. Compile this list as soon as the habitat types are known, but before undertaking actual field work.
>
> **Observed and Final Species List.** Observed species include all species actually detected on the project site or adjacent area. Indicate the method of detection and documentation on this list (observed, tracks, scat, etc.). Observations will rarely, if ever, reflect the entire list of wildlife that actually occurs at a given site. The final list should also include the potential species that were not detected, but are expected or have a reasonable possibility of occurrence on the site.
>
> **Habitat Affinity.** Whenever an animal or its sign is located, the habitat in the area should be identified. Determining habitat utilization and preference is one of the most important aspects of the gathering of baseline data and cannot be made with just a few days of data collection. Several systematic surveys conducted seasonally provide the best information on habitat affinity. Data collected incidentally to other work may augment, but are not an appropriate alternative, to systematic observations.
>
> **D.** **Seasonal Data Collection**

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[26] U.S. EPA p. 27.

[27] Highway EIA, p. 36.

> One year is the **minimum** [emphasis in original document] survey period necessary to obtain data on all classes of wildlife. It is not necessary, however, for all species to be sampled during all seasons. The following guidelines reflect the season and sampling intensity that may be required for various groups of wildlife.
>
> **Big Game**. Numbers, distribution, and habitat affinity. Winter occurrence (January – February) and reproductive success (August – September) are particularly important data that must be obtained to provide a minimal assessment of big game status.
>
> **Other Mammals.** Distribution and relative abundance – trapping or other surveys during Fall (August – October)
>
> **Birds.** Determine raptor nest activity status, without disturbing nesting birds (February – July). Other breeding bird densities (April – August). Timing of surveys should be adjusted relative to the expected local peak breeding activity, which depends on latitude. Winter occurrence and abundance of all birds, especially raptors (December – February).
>
> **Reptiles and Amphibians.** Species occurrence and relative abundance (May – September). Document breeding ponds for amphibians after periods of precipitation.
>
> **Fishes.** Occurrence and abundance (any season)."[28]

The detailed nature of these guidelines reflects the diversity of species, behaviors and habitats that must be captured in any meaningful biological baseline characterization.

With these other examples of proper assessment, it is clear that the Highway EIA under review here falls far short of any adequate effort to address the guaranteed negative impacts from this project. Even India's own EIA guidance for highways lists expected impacts that need to be addressed:

> "**5.5 Biological Environment**
> *Anticipated Impact*
> \> Impact due to removal of trees in the highway alignment
> \> Impact on forest resources, economically important plants including medicinal plants and threat to endangered species
> \> Impact on wildlife habitat and biodiversity due to change in land use
> \> Impact due to fragmentation of wildlife habitat and territories
> \> Impact due to changes in water quality, soil profile, noise, light and air pollution, which

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[28] New Mexico Department of Game and Fish. 2010. Baseline Wildlife Study Guideline. 28pp. Pp. 3-4. http://www.wildlife.state.nm.us/download/conservation/habitat-handbook/project-guidelines/Wildlife-Baseline-Study-Guidelines-and-Appendix.pdf

may affect the nature and character of habitats
> Pressure on habitats wildlife as a result of increased access provided by roads".[29]

Returning to the initial questions to be addressed in this review:

1) No, the highway does not directly benefit wildlife in the protected areas.
2) No, the Highway EIA does not adequately address the impacts to wildlife and biodiversity.

Without any legitimate baseline species assessment or assessment of impacts from the existing road, nor modeling or field surveys to assess how impacts might change, there is no credible way that this project can be allowed to proceed.

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[29] Ministry of Environment & Forests, Government of India, New Delhi. 2010. Environmental Impact Assessment Guidance Manual for Highways. 95 pp. p. 24.

Annexure 46 (extract)

The Dasgupta Review – Independent Review on the Economics of Biodiversity

Interim Report

April 2020

linearity.[21] The implications of non-linearity are so far reaching that it would be no exaggeration to say that the economics of biodiversity is about non-linear Earth system processes. For that reason, the Review delves deeply into the technical issues that arise in consequence. Here we illustrate the salience of ecosystem non-linearities using an example of the widespread human practice of fragmenting ecosystems.[22]

Fragmentation of Ecosystems

2.51 When habitats are fragmented, abrupt boundaries appear between fragmented patches. In a long running study of the Amazon rainforest, Thomas Lovejoy and his collaborators found that, when fragmented, even large fragments of forest area (100 hectares) can lose up to 50% of their species in a dozen years (Laurance et al., 2002). Clearings as narrow as 80 metres have been found to hinder the recolonization of fragments by birds, insects, and tree-dwelling animals (Laurance et al., 2002). Paleo-biologists have found fragmentation of natural habitats to be a reliable early-warning sign of biodiversity loss. Unfortunately, 70% of Earth's remaining forests today are within 1 kilometre of the forest's edge (Haddad et al., 2015). Future losses to natural habitats owing to further extensions of land for agriculture are estimated to increase by nearly 20% by 2050 (Tilman et al., 2001).

2.52 Fences fragment grasslands and prevents seasonal migration by animals. Plantations and mines create further fragmentation, as do linear infrastructure like roads, railways and pipelines, and increases in the number and sizes of towns and cities. More generally, fragmentation can prevent populations from conforming to their behaviour over their life cycle. For example, damming rivers fragments them. The construction of high dams is favoured by national economic planners because they expand irrigation, supply energy, and offer protection against floods. However, they also alter the hydrology of freshwater ecosystems by fragmenting them. Fragmentation obstructs fish migration routes, which are essential for spawning and feeding, and limits dispersal.

2.53 Freshwater habitats cover only 0.8% of Earth's surface, nevertheless one-third of described vertebrates, including approximately 40% of fish species, are found in them. It has been estimated that the approximately 40,000 high dams that currently exist worldwide have altered 50% of the volume of river water, by either regulation of water flow or fragmentation (Barbarossa et al., 2020). The pending construction of some 3,700 more high dams will raise the figure to over 90%.[23] Current measures of fragmentation are highest in the US, Europe, South Africa, India, and China, but increases in fragmentation due to future dams is estimated by the authors to be especially high in the tropics, with declines in the connectivity index of some 20-40% in the Amazon, Niger, Congo, and the Mekong Basin. The Living Planet Index estimates that populations of freshwater species have declined by 83% since 1970, with fragmentation cited as a major threat facing these ecosystems

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[21] See, for example, Loreau et al. (2001), Worm et al. (2006), and Sodhi, Brook, and Bradshaw (2009).

[22] In an extensive study of Earth system processes, Steffen et al., 2004 discovered that there were no known processes that are *not* non-linear.

[23] High dams are defined as dams that are taller than 15 metres. The figure of 40,000 for the number of existing high dams worldwide is probably an underestimate, but it pays to work with conservative figures when even they correspond to massive disruptions.

Annexure 47 colly

To

Shri Prakash Javadekar

Honourable Minister of Environment, Forest & Climate Change,

Indira Paryavaran Bhawan,

Jor Bagh, New Delhi - 110 003

4th June, 2020

Subject: Concerns about diversion of forest land in Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park for railway double tracking, widening of NH4A highway and laying of LILO transmission line.

Hon'ble Shri Prakash Javdekar and members of the National Board for Wildlife,

We are writing to you as scientists, academicians, conservationists, artists, allied professionals as well as concerned citizens with respect to the diversion of forest land for three major projects that are planned through Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park. We refer to the matter (F.No.6-2/2020 WL, dated: 20/04/2020, agenda item no. 3 with fresh proposals 57.3.2 and 57.3.3) from the 57th meeting of the Standing Committee of the National Board For Wildlife, held on 7th April 2020 through a video conference where two projects were approved. Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park is a treasure trove of flora and fauna, and is part of a larger contiguous forest and an important tiger corridor between Goa and the adjoining Kali Tiger Reserve in Karnataka. We would like to put on record our grave concerns about the planned projects

Ecological significance of Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park

With an area of 240 sq. km., Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park together constitute the largest protected area in Goa. This forest is part of the Western Ghats, which is one of the 8 biodiversity hotspots of the world and part of the UNESCO World Heritage Site. All three projects require diversion of forest land from this single protected area. Direct sightings and camera trapping by the Forest department has revealed presence of Schedule-I & Schedule-II species such as the tiger (*Panthera tigris*), dhole (*Cuon alpinus*), mouse deer (*Moschiola indica*), gaur (*Bos gaurus*), and Indian Pangolin (*Manis crassicaudata*). Other rare and vulnerable species (IUCN Red List) such as small-clawed otters (*Aonyx cinereus*) and four-horned antelope (*Tetracerus quadricorni*s) are also found in the project area.

In addition, the protected area is also home to more than 721 plant species, 235 bird species, 219 butterfly species, 80 odonate species, 70 mammal species, 75 ant species, 45 reptile species, 44 fish species, 43 fungi species, 27 amphibian species, 24 orchid species, and 18 species of lichens. Two dragonfly species (*Idionyx gomantakensis* and *Cyclogomphus flavoannulatus)* which are endemic to the Western Ghats were described to science from here. In fact the type locality of *Idionyx gomantakensis* is adjacent to the railway track which is proposed to be expanded. It has been recorded from few locations elsewhere in the Western Ghats, and this is the only location in Goa where it has been known from, so far, close to the proposed railway tracks. This protected area is the only other site in India where the reclusive ant *Parasyscia indica* is found and these sites are from where the LILO transmission is proposed.

Many arboreal species such as Slender loris (*Loris lydekkerianus*) and Indian Giant flying squirrel (*Petaurista philippensis*) are present and they require canopy connectivity. Tree cavity nesting birds such as hornbills such as the Great Hornbill (*Buceros bicornis*) which is classified as Vulnerable and Malabar Pied Hornbill (*Anthracoceros coronatus*) which is classified as Near Threatened are also found here. In addition there are 18 bird species that are endemic to the Western Ghats and 7 bird species that are of high conservation concern found here (according to the State of India's Birds, 2020). Rare and endemic amphibian species such as the Malabar Tree Toad (*Pedostibes tuberculosus*) are also found in this protected area.

This protected area is our pride and home to all Goa’s state symbols: the state tree (*Terminalia tomentosa*), the state animal (Gaur, *Bos gaurus*) and the state bird (Flame-throated Bulbul, *Pycnonotus gularis*). The rivers and forest streams also provide water to a large human population in the district of North Goa.

Importantly this area harbours many Critically Endangered (*Arisaema sivadasanii, Aspidopterys canarensis* and *Glyphochloa veldkampii*), Endangered (*Amorphophallus commutatus var. Anmodensis, Begonia trichocarpa, Discospermum sphaerocarpum, Habernaria multicaudata,* *Strobilanthus ciliata* and *Wiesneria triandra*) and Vulnerable (*Nilgirianthus ciliatus, Dacaschistia trilobata, Eranthemum capense var. concanensis, Oberonia brachyphylla* and *Paracaryopsis coelestina*) plant species. In addition 127 endemic plant species occur in this area.

Besides the flora and fauna, these forests have fresh water streams that feed the main rivers including Goa's lifeline, river Mandovi. This river is a major source of potable water and provides irrigation facilities, produces biotic and mineral resources and aids in travel of people and goods to different parts of the state

This area was marked as an **Ecologically Sensitive Area** by the Western Ghats Expert Ecology Panel that was appointed by your own Ministry. These forests have many sacred groves that have been protected by residents for centuries because of their association with many deities and are therefore of tremendous cultural and conservation importance.

Social and economic significance of Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park

Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park also contributed to tourism revenue, the very backbone of Goa's economy. This protected area is a site for nature-based tourism with popular places such as Dudhsagar Falls, Tambdi Surla Falls, Devil's Canyon and the 12th century Tambdi Surla Temple, each with popular treks leading up to them, are major tourist attractions that are all dependent on the environment sustained by this protected area as a whole. The hinterland nature-based tourism industry in this area is a growing revenue source for the state, and revenue mainstay during the monsoons when coastal tourism closes down. A large proportion of the local population benefits from employment, which is directly dependent on the integrity of the natural landscape of the area. Fragmentation of this landscape is likely to create human-encroachments that are frequently seen because of linear intrusions, apart from increasing the chances of human-wildlife conflict.

Details about approvals provided in the minutes of the 57th meeting of the Standing Committee of the National Board for Wildlife on 20.04.2020.

Agenda item 57.3.2 w.r.t. to Transmission Line: If an EIA report has been submitted, it is not accessible in public domain and members of the State Wildlife Advisory Board were not given an EIA to scrutinise for both projects before the meeting. There is a lack of clarity on the number of trees that the user agency is permitted to fell, as per the minutes of the State Board for Wildlife and National Board for Wildlife. It is unclear how all the equipment and machinery required to erect these large towers carrying high tension cables will be taken to the site with minimum damage, given that the area is only currently accessible by foot.

Agenda item 57.3.3 w.r.t. to Highway: The EIA has multiple flaws and is substandard on many fronts, including the biodiversity assessment, which has woefully underestimated the impacts of this project. There is no evidence that signages alone limit vehicular speed and reduces road kills. With the road being widened the vehicular speeds are likely to be higher. It is also unclear how animals will use the eight proposed underpasses. Providing viewpoints for the public, drinking water facilities and toilets will increase waste and littering in this protected area. The stretch of the road to be widened is about 13 km in length and such facilities proposed inside a protected area will only further increase disturbance in this ecologically-sensitive PA.

Railway double tracking from Castlerock to Collem: The proposed railway line doubling through two protected areas, Kali Tiger Reserve, and Bhagwan Mahaveer Sanctuary, was discussed before the 56th NBWL Meeting (dated: 17/12/2019, Agenda no. 3). This will result in large-scale disturbance to this sensitive tiger habitat by bissecting nearly 26 km through it. This region is the only contiguous landscape with a viable tiger population (~40-50 individuals) in the north-central Western Ghats. There are known cases of large mammals such as leopards and gaurs being run over by trains while crossing the tracks. There are indirect effects of lights and wires that are likely to affect owls and raptors. Any further disturbance due to the construction and doubling of the railway-line will damage these protected areas irreversibly. The mitigation measures will not prevent disturbance due to increased movement of freight and passenger trains through this hilly region. Hill cutting in this steep terrain combined with increased rainfall variability may make this area prone to further land-slides and could increase serious ecological, financial and social costs.

Impacts of the proposed projects:

These three projects – railway line double tracking, NH-4A highway widening, and laying of the transmission line - are likely to lead to multiple downstream effects of fragmentation of these fragile ecosystems. The road and the railway track will create stark barriers that may lead to a rise in wild animal mortality. Movement of arboreal mammals, reptiles, fish and amphibians is likely to be hindered by these barriers. The laying of the transmission line would need felling of large old growth trees along its course, thereby removing not just trees but also disrupting plant-animal interactions (such as seed-dispersal and pollination) that provide ecosystem services to forests and humans. Disrupting canopy connectivity increases spread and colonisation of invasive species (eg: *Chromolaena odorata*).

The hill cutting with regards to the road and land filling with regards to the railway track, along with the deforestation itself, will lead to eroded soil being deposited in the rivers and streams. Additionally, increasing sediment load resulting from the removal of riparian vegetation is likely to negatively affect the survival of hill-stream fish. Such water flowing downhill from this protected area will affect residents and farmers in villages such as Dharge and Bolkarne, who are dependent on these water resources.

These forests that have existed for thousands of years are irreplaceable. Direct loss of biodiversity and the far-reaching impacts of habitat fragmentation will reduce ecosystem stability and decrease forest resilience, that is also required to deal with the effects of climate change. These three projects can only be evaluated through a rigorous cumulative impact assessment study of all three linear projects within one protected area and cannot be looked at in isolation by the MoEFCC and the NBWL

If these projects are cleared, they will have severe repercussions on wildlife and for the livelihoods and ecological security of the people of Goa. Video-conferencing these decisions about forests that are important to us, does not allow site-specific scrutiny to substantiate the facts, examine documents, or register the voices and opinions of stakeholders, in a fully democratic manner.

We hope that the concerns put forth will be considered seriously, especially given that this decision was taken during the Covid 19 lock-down when this pandemic has been tied to the environmental degradation. We urge that under your leadership, the MoEFCC and the honorable members of the NBWL will strongly reconsider these approvals in the interest of democracy to safeguard Goa’s biodiversity and ecological security.

Thank you for your kind attention.

Yours sincerely,

Omkar Dharwadkar, Foundation for Environment Research and Conservation, Goa

Abhishek Jamalabad, MSc, Independent researcher

Girish A. Punjabi, Wildlife Conservation Trust, Mumbai

Nandini Velho, Independent Researcher, Earth Institute Fellowship Alumna, Columbia University.

Marishia Rodrigues, MSc, National Centre for Biological Sciences.

Nirmal U Kulkarni, Director, Mhadei Research Center

Parag Rangnekar, Foundation for Environment Research and Conservation

Arnold Noronha, Vivekanand Environment Awareness Brigade

Prerna Singh Bindra, Conservationist/Author. Former Member of the National Board for Wildlife

Madhura Niphadkar-Bandekar, Foundation for Environment Research and Conservation, Goa

Danika Távora, Independent Education Consultant

Shashank Srinivasan, Director, Technology for Wildlife

Cara Tejpal, Sanctuary Nature Foundation

Ravi Jambhekar, PhD., Azim Premji University, Bangalore, Karnataka.

Sherry Fernandes, Freelance Journalist, St. Xavier's College, Goa.

H S Sathya Chandra Sagar, Centre for Ecological Sciences, Indian Institute of Science, Karnataka

Pronoy Baidya, Centre for Ecological Sciences, Indian Institute of Science

Prerna Agarwal, Independent Researcher, Pune

Vidyadhar Atkore, Ph.D, Freshwater Ecologist and a Founding member of Forestry Scholars Society, Amravati, Maharashtra

Nandini Mehrotra, Technology for Wildlife

Rhea Lopez, National Centre for Biological Sciences

Harshada S Gauns, Arannya Environment Research Organisation

Jalmesh D Karapurkar, Research Assistant, Center for Ecological Sciences, Indian Institute of Science

Vikrant Jathar, Wildlife Conservation Trust, Mumbai

Akshatra Pracy Fernandes, Goa University.

Purva Variyar, Wildlife Conservation Trust

Farai Divan Patel, National Centre for Biological Sciences

Gaurav Shirodkar, Sanctuary Nature Foundation

Sridhar Halali, Graduate Student, University of Cambridge

Radhika Kanade, Ph.D., Independent Researcher, Pune.

Kaushal Patel, MSc, Independent researcher

Shubham Rane, Junior Research Fellow, Bombay Natural History Society

Dheeraj Halali, BSc, Parvatibai Chowgule College of Arts & Science, Goa

Shantanu Joshi, MSc, National Centre for Biological Sciences, Bangalore

Gabriella D’Cruz MSc, Independent researcher

Katrina Fernandez, PhD, Director, Wild Otters Research, Goa

Pankaj Lad, Trustee, Planet Life Foundation, Goa

Dean D’Cruz, Architect and Planner, Goa

Vighnesh Shinde, MSc, Abasaheb Garware College, Pune, Maharashtra

Reboni Saha, Designer, Goa

Saurav Sattarker, MSc, Goa University

Mandar Bhagat, Goa Bird Conservation Network, Goa

Vrinda Shinde, BSc, Government College Quepem, Goa

Jonathan Patrick Faria , BSc Agri , DBCA Sulcorna, Goa

Sarang Naik, Independent Photographer, Mumbai

Jessica Luis, MSc, Independent Researcher and Illustrator

Sonal Pawar, MSc, Abasaheb Garware College Pune, Maharashtra

Adv. Shashikant S. Naik, M.Com,LLB, Advocate, Curchorem Goa

Sanketa Dessai, Graphic designer, Margao Goa

Ruthasma Khan, Flying Winx Goa

Mrinmayee Thakur, Architect, Goa

Shubham Gurav, BSc, Quepem College, Goa

Mayur Gawas, Arannya Environment Research Organisation, Goa

Lalita P. Sinai Kuncolienkar, M.A, Goa University, Goa

Roozbeh Gazdar, Service (MPS Interactive Systems), Mumbai

Hardeep Gazdar, Lecturer, Bhavan's College, Mumbai

Hanuman Gawas , Research Associate, Mhadei Research Center, Goa

Gajanan Shetye, Naturalist at Nature's Nest Nature Resort and Conservation Center, Surla, Dharbandoda.

Shreerang Phadke, Trustee, Planet Life Foundation, Goa

Ramesh Zarmekar , Trustee, Planet Life Foundation, Goa

Amit R Gawde, Naturalist, Mumbai

Tallulah D’Silva, Architect, Writer, Educator,Goa

Assistant Professor at UPG College and Researcher In University of Mumbai (Wildlife Tourism)

Anushka Rege, PhD Candidate, Nanyang Technological University, Singapore

Akshay Shinde, M.Sc. Biodiversity, Wildlife Conservation and Management, University of Mumbai

Aakash Bhushan, Tiger Conservation Program, WWF-India, Central Indian Landscape.

Savio Fonseca, Author of Birds of Goa, Chief Naturalist at Avocet & Peregrine, Wildlife Photographer and trustee at the Biodiversity Action Network of Goa

Pooja R Bhatia (Khoj-aao! Adventures, Goa)

Anto Christy, Secretary, NKBN

Rizelia Rodrigues, MSc, Mount Carmel, College, Bengaluru

Bipin M Bhosale (co-founder Khoj-aao!Adventures, Goa)

Mallika Vaznaik, MSc. London School of Economics & Political Science, Design Researcher at Quicksand Design Studio

Prasanna V. Parab, Member, Goa Bird Conservation Network.

Vishal R. Malave, Photographer & Founder, VM Studios Goa

Malorie Lewis, Editor

Sarvesh S. Adel, MSc Marine Science, Goa University

Atul Borker, Founder and Creator, Luta Innovation, Goa

Shraddha Rangnekar, Foundation for Environment Research and Conservation

Trisha Gupta, Researcher, Dakshin Foundation

Avi Pawar, Singer and Art Instructer, Ravindra Bhavan, Goa

Sharon Gahatraj, Teacher and nature lover

Tyween Jia Coutinho, M. Sc. Biotechnology JNMC, Belgaum.

Sushma Mishra, Founder-Director, Wildpaw Adventures and Operations Head, Grassroutes Journeys

Mayuresh Hendre, Naturalist and Wildlife Photographer, Mumbai

Kabir David, Quicksand Design Studio, Goa

Snigdha Sehgal, M.Sc, Educator, Goa

Amit Dongrikar Quality Health Safety Environment Information Lead Auditor

Ramesh Gaonkar, Founder, Foundation for Environment Research and Conservation (FERC)

Ruchi Nayak, Sr Manager Brandzes, Peepul, Mumbai

Karan Manral, Consultant, Goa

Yogita Mehra, Masters in Environmental Economics, Goa

Mabel Menezes, Chairperson Chinchinim BMC and GBCN

Ganraj Kholkar, bsc , Govt. College Quepem, Goa

Sandesh M. Gawas, PhD Zoology

Pranjal Gaonkar , MSc, Goa University

Surendra Desai, Founder, Mid Earth Wildlife and Adventure Holidays

Mihir Mulay, Director, Mid Earth Wildlife and Adventure Holidays

Ayesha E. Shetkar, MSc, Goa University

Arna Mazumder, MSc Zoology

Bonny Fernandes, MSc, Chowgule College, Margao - Goa

Pradnya Mhauskar, BSc, Honda Sattrari, Goa

Neha Mujumdar, Bombay Natural History Society, Mumbai

Mangesh Gaonkar, BSc,Valpoi Sattari Goa

Alisha Sheikh, M.Sc, Entomology

Tamal Raha, PhD, Founder, Integrated Biopharma and Pharma Solution

Yuwaraj Gurjar - Wildlife Photographer and Nature Lover

Siddhi Gawas - MSc, Goa University

Sneha Desai- SMC Canacona Goa

Joshua D'silva, Photographer and Filmmaker

Vishal Rawlley - Media Practitioner and Educationist, Goa,

Mithali Halarnkar, SMC Canacona Goa

Sarvanand Velip, Graduate Goa University

Vaishali Ghadi , Graduate Goa University

Vibhav Srivastava, Conservation Biologist

Jarudhi Negi, The busrideLab

Mittal Gala, Nature Conservation Foundation

Bikram Aditya Nath, TheBusrideLab

Charles Po, BSc, St.Xavier's College

Kevin D'souza, Research Scholar, Goa University

Kartik Redkar, MSc zoology, Goa University

Shaunak Modi, Coastal Conservation Foundation

Khushvi Naik, MSc Zoology, Goa University

Venessa Silveira, Educator and Independent Researcher

Manjeet Gawas, Goa Bird Conservation Network

Vaibhavi Naik, M.Sc. Zoology, Goa University

Aditya Naique, Freelance Android Developer

Zuri Camille de Souza, BA Human Ecology, Designer

Ridhi Shirodkar, Goa University

Rohan Chakravarty, Cartoonist

Vithal J Naik, Goa University

Dr Nirmala Dharap, Pediatrician and Nature lover

Prinssy Chandra , Media Professional

Aamir Hussain Jakati, B.Sc B.Ed, Independent researcher (Entomology), Goa University

Abhijeet Ramesh Jagtap, Biodiversity Analyst, Terracon Ecotech Pvt. Ltd.

Adesh Shivkar, Director, Nature India

Malvika Padate, MSc Biotechnology

Paresh Bagi (B.E. Computers) , Valpoi Sattari Goa

Kameshwari Raikar MSc Goa University

Prashant Maurya, Margao, Goa (BA Hon & PG Diploma in Tourism Management)

Enrique D'Souza, Horticulturist, Tivim, Goa

Shubha Kauthankar, MSc, Goa University

Tejaswi Naik, MSc, Zoology, Goa University

Fernando Velho, M. Arch (Michigan), Founder, Studio Woodpecker

David Lobo, BCA, St. Xavier's College

Marisa Colaco, BCom, St. Xavier's College

Umesh Srinivasan, PhD, Assistant Professor, Centre for Ecological Sciences, Indian Institute of Science

Lester Silveira, B.Arch (Manipal University), Founder The Balcao

Jason Keith Fernandes (Ph.D) , Researcher, Centre for Research in Anthropology, Lisbon

Date: 29 Jun 2020

Ref: TTAG/LTR/2020 NS/1156

To
Shri Prakash Javadekar
Honourable Minister of Environment,
Forest & Climate Change, Indira
Paryavaran Bhavan,
Jor Bhag, New Delhi - 110 003
Email: mefcc@gov.in, pjavadekar@gmail.com

Shri Prahlad Singh Patel
Minister of State (Independent Incharge)
Ministry of Tourism
Transport Bhavan, Parliament Street
New Delhi - 110 001
Email: prahladp@sansad.nic.in

Subject: Concerns regarding forest land diversion for NH4A highway expansion, railway double tracking and laying of LILO transmission line through Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park.

Honorable Shri Prakash Javdekar and members of the National Board for Wildlife and Minister of Tourism,

As members of the Travel and Tourism Association of Goa we would like to express our concern about the diversion of forest land within and around the Bhagvan Mahaveer Wildlife Sanctuary and Mollem National park, both prime locations of hinterland and nature-based tourism.

We urge you to consider the intersections between environmental degradation and the future of Goa's tourism sector which is at crucial junction. The 2019-2020 tourist season began with unseasonal weather and tropical storms and is now facing the covid-19 pandemic. This pushes us to strengthen natural capital and ecosystem resilience to strengthen the future of tourism in Goa. In this context, the three proposed projects (four lane highway expansion, double tracking of the railway line and laying of the transmission line) will not only change patterns of land-use but significantly affect the tourism potential of these areas and Goa's overall tourism vision.

This brings us to the main point of nature-based tourism in the hinterland. Over the past decade, there is an observable global trend in nature-based tourism (including in India), which shows an increase in the number of international visitors to less-wealthy countries.[1] Another study on nature-based tourism trends in India shows a 14.9% average growth rate (the number of visitors per year) to India's protected areas, bulk of which are domestic tourists.[2] In fact, in 2014, the State Government of Goa appointed KPMG to create a 25 year Master Tourism Plan where the state's tourism assets were looked at more holistically. In their report they state that the "historical promotion of 'sun, beach and sand' alone has led to non-discovery of other tourism assets". Thus the change in ecosystem values of Bhagwan Mahaveer Wildlife Sanctuary and Mollem National Park stands to compromise Goa's overall vision for tourism.

The region within and surrounding Mollem National Park and Bhagvan Mahaveer Wildlife Sanctuary has some of the most scenic natural habitat in the country and is celebrated as part of a UNESCO World Heritage Site as well as a Biodiversity Hotspot. A site with historical and cultural value is that of the 12th century Mahadeva Temple in Tambdi Surla which is the only structural temple to survive from the Kadamba period. These are sites of great pride for the state of Goa and are valued and celebrated by tourists and residents alike. Another site is Dudhsagar Waterfalls, where the waterfalls alone attract over 2100 tourists per day, 7 days a week for a period of 8 months. This equates to roughly 4.7 lakh people per season that visit this location. Trends also show an increasing demand for homestay tourism in Goa which according to local operators already hosts over 6000 tourists per year. Hinterland tourism is thus not only a growing revenue generator for the state but can safeguard our position on the global tourism map as it provides a buffer when the coastal belt is closed during the monsoons.

With this in mind, we request you to consider the three requests, which we as the Travel and Tourism Association of Goa have put forth:

Cumulative impact assessment: We urge the concerned authorities to conduct a cumulative Environmental Impact Assessment of the impact of all three projects that cannot be looked in isolation. This will help us better understand the impact of these projects on the hinterland tourism of the area.

Due process: Two projects were passed on the basis of a virtual clearance that should be reconsidered and be held in abeyance until pandemic-related travel restrictions are lifted to

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allow in-person meetings and travel to project sites for fresh appraisals following due process.

Rationale of the projects: We would like a clarification on the explicit need for these three projects to run through a protected area. We request the authorities to put forth a working model that integrates livelihood, ecological and tourism data, for all three projects. For instance, there is an existing wide-double road with 7 m carriage that is being proposed for highway expansion, especially when there are other routes like Chorla Ghat. Seasonal travellers that visit the area for nature-based tourism are unlikely to demand a highway expansion. In conclusion, we are concerned with the impact of that these three projects will have on the tourism industry and we would like an impact assessment on the damage done to the protected area and surrounding forests versus what the connectivity benefits are for the tourism industry, residents and other stake-holders.

We urge your consideration on the above matters. This will go a long way in safeguarding Goa's current tourism industry and assist us in planning for a better model of tourism for the State.
Thank you for your kind attention,

Copy to:
Hon'ble minister of State for EF&CC
babulsupriyo@gmail.com

Chief Minister of Goa
cm.goa@nic.in

Governor of Goa
governor.goa@gov.in

Member of Parliament, North Goa
shripad.naik@sansad.nic.in

Minister of Parliament, South Goa
F.sardinha@sansad.nic.in

Minister of Tourism, Goa
mla.pernem.gvs@gov.in

Minister of Forests, Goa
mla.curchorem.gvs@gov.in

Director General of Forests
dgfindia@nic.in

Additional Director General of Forests (Forest Conservation)
adgfc-mef@nic.in

Inspector General of Forests (Forest Conservation)
igfc-mef@nic.in

Raman Sukumar, Member NBWL
rsuku@iisc.ac.in

Director WII and member NBWL
dwii@wii.gov.in
dmohan@wii.gov.in

Secretary, MoEF&CC
secy-moef@nic.in

Chief Secretary
cs-goa@nic.in

PCCF Forest
pccf-fore.goa@gov.in

APCCF
apccf.goa@gmail.com
apccf-forest.goa@nic.in

Yours Dependably,

Mr. Nilesh Shah,
President, Travel and Tourism Association of Goa (TTAG)